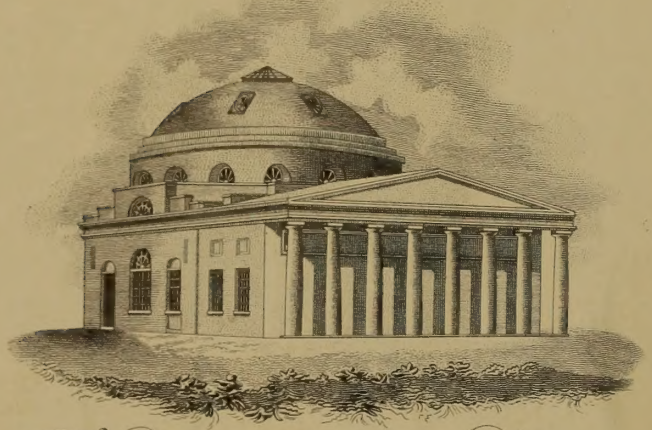
BOUND BY CHARLES L. ELLIOTT 1901 HANOVER ST. BALTIMORE
WE BIND BOOKS OF ALL DESCRIPTIONS

JUN 14 1940

LIBRARY
OF THE
School of Medicine



University of Maryland

University of Maryland Theses

Early Doctor of Medicine and Doctor of Physic Dissertations with Corrected Tables of Contents

These manuscripts described as either an Inaugural Dissertation or an Inaugural Essay were presented to the University of Maryland for the Degree of Doctor of Medicine and/or Doctor of Physic during the years 1813-1887. The individual dissertations were bound together during the 1940's. The original tables of contents for the bound volumes contained multiple errors in authors' names, titles, and/or years. To address these errors, an additional "Corrected Table of Contents" has been inserted at the beginning of each volume.

The project team who investigated and corrected the tables of contents were Richard J. Behles, Historical Librarian/Preservation Officer; María Milagros Pinkas, Metadata Management Librarian; Angela Cochrane and Carol Harling-Henry, Resources Division; Sarah Hovde, Abra Schnur and Megan Wolff, Services Division.

These dissertations were digitized in 2011-2012 and are available at the UM Digital Archive (archive.hshsl.umaryland.edu) and the Internet Archive (www.archive.org).

(CORRECTED TABLE OF CONTENTS)

UNIVERSITY OF MARYLAND

THESES

1868(b)

Author	Title
Cordell, Eugene F.	Aneurism of the Abdominal Aorta
Frey, Robert R.	Typhoid Fever
Pinkston, Camillus. L.	Diabetes
Newman, J. Barbour	Yellow Fever
Kirk, William M.	Digestion
Williams, J. Buxton Jr.	Turpentine
Warren, Lucius A.	Pleuritis or Pleurisy
Watkins, Williams C.	Clinical Report of Cases
Wilson, James H	Peruvian Bark and Its Preparations
Moorehead, Charles C.	The Circulation of the Blood
Ware, N. Anderson	The Circulation
Munroe, Thomas F.	Acute Bronchitis
Shipley, William S.	Scarlatina

HSHSL 2012 for the UM Digital Archive. Sources consulted for corrections: Original Dissertation; University of Maryland Medical Faculty, Matriculation List, 1851-1892; Cordell, Eugene F. "University of Maryland, 1807-1907" (New York : The Lewis Publishing Company, 1907), Volume 2.

UNIVERSITY OF MARYLAND

THESES

1868(b)

Cordell, E. F. (Eugene)	Aneurism of the Abdominal Aorta	31p.
Frey, R. R. (Robert)	Typhoid Fever	32p.
Pinkston, C. L. (Camillus)	Diabetes	30p.
Newman, T. B. (J. Barbour)	Yellow Fever	31p.
Kirk, W. M. (William)	Digestion	45p.
Williams, J. B. Jr. (Buxton)	Turpentine	16p.
Warren, L. A. (Lucius)	Pleuritis or Pleurisy	38p.
Watkins, Wm. C. (William)	Clinical Report of Cases	21p.
Wilson, J. H. (James)	Peruvian Bark and Its Preparations	28p.
Moorehead, C. C. (Charles)	The Circulation of the Blood	24p.
Ware, N. A. (Anderson)	The Circulation	29p.
Munroe, T. F. (Thomas)	Acute Bronchitis	20p.
Shipley, W. S. (William)	Scarlatina	45p.

AN

Inaugural Dissertation

ON

Aneurism of Abdominal Aorta

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

Eugene F. Cordell. 19

Of

Virginia

Session of 1867-68

WM
1894

Aneurism of the Abdominal Aorta.

It will not do for me Polonius - like to say
with that "brevity is the soul of Wit", whilst
I never cease my scribbling. Therefore as my
task has already reached a length far beyond
my contemplation when I began it, I will
leave the high flown exordiums to those who
are not so fortunate, & step abruptly upon the
threshold of my subject.

An Aneurism is a circumscribed enlargement
in the course of an artery, produced by the
weakening & subsequent dilation of its walls.
It may be true or false, spontaneous or trau-
matic, the former terms having reference to
the tissues which compose its sac, the latter
to the mode of its production. A true aneu-
rism is one in which one or more of the tunics
without necessarily being perfect form part
of the tumor; a False Aneurism or the
contents of one where all the coats have giv-
way, & the sac is composed of condensed
surrounding tissue." A Spontaneous Aneurism.

" Gross Vol. II.

arises from a cause which affects the system at large, whilst the Traumatic is always produced by an injury. The False is of much more frequent occurrence than the True, the existence of which was even denied by one of the greatest of Anatomists.+ The Spontaneous is less often met than the Traumatic, the former being chiefly confined to deep-seated vessels, the latter to those which are the most exposed; hence the predilection of the former variety for the Aorta, its frequency diminishing as the distance from the heart increases, for instance, it occurs only one third as often in the Abdominal portion of that vessel as in the Thoracic. The Spontaneous variety to which my subject limits me, depends almost invariably, if there be a single exception, upon a fatty & calcareous degeneration of the tunics of the vessel. The former of these is characterized by the deposit beneath the epithelial coat of a substance resembling cheese in consistence & color & composed, as shown by the microscope, of granules of fat [illegible]

crystals of cholesterine & various earthy constitu-
-ents; - the latter which is usually develop-
-ed in company with the other, is distinguish-
-ed by the deposit of the earthy salts of lime
& magnesia in the same situation. Mercurialis-
-zation, Syphilis, Intemperance, & other chron-
-ic diseases which impair assimilation, or de-
-teriorate the blood may give rise to this de-
-generation. The influence of intemperate hab-
-its is shewn by the fact that of 10 cases of
Internal Aneurism reported by Dr. [illegible] &
Liddell, in the Am. Journal for Jan.y 67 as
instances of sudden & unexpected death from
this disease, all are said to have used ardent
spirits to excess. The frequency with which
fatty degenerations occur in the dissipated
is referred to by all pathologists. It is doubt-
-ful whether the exciting causes mentioned
by all authors ever produce the disease alone
without the cooperation & pre-existence of
the degeneration. There are several reasons which
can be assigned for the preference of this
disease for the Aorta. [illegible]

mentioned as the most important, viz: the greater force of the blood in the Aorta, the motions of that vessel during great mental or physical excitement, &c. may be added another of greater importance, but which seems to have escaped the observation of writers generally, & this is the greater size of this vessel in consequence of which a larger supply of blood is necessarily sent to it through the vasa vasorum than to any other, & hence deposits of such abnormal constituents as atheroma must occur here more rapidly & in greater amount than elsewhere. That this circumstance must be assigned its due importance is proven from the fact of the similarity or [illegible] of structure of all the larger arteries in consequence of which there would be no more attraction for this atheromatous deposit in one than in another, & yet it occurs but rarely in the others when compared with the Aorta. In many deposits of these abnormal blood constituents we can explain that least infer with much reason the [illegible]

their situation from some peculiarity in the tissue in which they collect, or their proximity to one of the great channels by which excrementitious principles are dismissed from the system. In Phthisis, for in the tubercle accumulates in the Lungs because of an abortive effort of Nature to throw off this intruder by the air passages, we cannot interpret this preference; at least if the blind & arbitrary assertion of some special affinity be admitted we must allow that the circumstance which has been mentioned must very materially aid in its production. Of course I am only trying to explain the comparative frequency of the deposit in the Aorta not why it should occur at all in the arteries; this is perhaps inexplicable.

I understand more clearly the [illegible] which Abdominal Aneurism of the Aorta is to be distinguished, the part which lies adjacent to it must be borne in mind. The Abd. Aorta begins at [illegible] & terminates at the [illegible] vertebra.

presenting a convexity corresponding to that of the column upon which it lies. It is a little to the left of the median line, & from its origin at the Diaphragm to its bifurcation is about 7 inches. In front of it are the stomach above opposite the Coeliac Axis, the Splenic & Left Renal Veins, the Pancreas & the commencement of the Duodenum below. On either side of the Coeliac Axis is a Semilunar Ganglion, & surrounding the Aorta is the Aortic Plexus. Behind it are the Lumbar Veins & the Thoracic Duct. On the right side are the Vena Cava Ascendens & Vena Azygos Major, on the left the Sympathetic System of ganglia. The Aneurism will produce different symptoms according as it arises from the anterior or posterior surface of the vessel, and as it presses upon either of the structures just mentioned. In those instances where it is connected with the back part of the vessel, — as in the case hereafter related, it compresses the [illegible] as generally to produce absorption of the

gastralgia constipation, vomiting &c produced as is evident, by compression or irritation of the stomach duodenum or colon. In the case of which I shall give an account the record of these symptoms was prominent, no evacuation occurring at one time for 6 days, and a large Epigastric tumor was manifest not withstanding the protrusion of the [illegible] al sac into the Thorax. Of the symptoms which have been mentioned the persistent pain in the back is to be regarded as the most constant, & indeed is the only one in some cases & it may even be so slight as scarcely to be noticed, as in Case X reported by Dr Liddell in which the tumor was small. A distinguished Dublin surgeon entitled it as the least doubtful sign of Aortic Aneurism, & remarks that its beacon light has guided him more than any other to detect the disease. An obstinate pain situated in the back in the region of the Spine [illegible] not [illegible] sufficient manifest cause [illegible] from [illegible] [illegible] [illegible]

of Abd.l Aneurism, & an examination into the state of the Aorta. The following instance is reported in Dr. Liddell's memoir to shew the value of this indication: A middle aged man had suffered with a severe & intractable pain in the region of the Lumbar Vertebrae. Great distress was depicted in his countenance, but the absence of a manifest cause led the physician to the conclusion that he was a malingerer. Dr. Liddell, [illegible] by the chronic pain made an examination, when pulsation & the thrill were found to be strongly marked. Upon his death shortly after, an Aneurism of the Abd.l Aorta was discovered of the size of a fist, which had ruptured into the transverse colon. Other symptoms whose importance is scarce inferior to the last are pulsation, aneurismal thrill & bruit. Pulsation is caused by the blood [illegible] into the sac from the artery, & expending its force against the sides of the former so that the hand when placed upon the [illegible] the impulse. [illegible] with the [illegible] or first sound of the heart [illegible]

so as to leave no appreciable interval between the two. This is easily explained, for instantly upon the contraction of that organ the blood is forced with rapidity along the Arch & descending Aorta, where its own gravity assists its speed, until meeting the aperture leading to the Aneurismal sac it at once rushes in & impinges against the walls upon which its force is exhausted. Pulsation is always practicable when the tumor is susceptible of external appreciation. Thrill is a sort of jarring accompanying the pulsation. The Bruit heard at each pulsation is a blowing sound, imitated by expiring with some force through the lips arranged somewhat as in whistling. This sound has been known to be absent in large Aneurisms filled with coagula. Both the thrill & bruit are produced by the blood rushing through the narrow aperture. The discrimination of this disease from the various humoral growths which are common in the Abdomen is frequently a source of great difficulty, [illegible] determining the [illegible]

The Pulse of the [illegible] second subsequent to the first [illegible] the interval [illegible]

prima via thoroughly so as to get rid of any accum-
-ulated faeces a [illegible] then advise that
the patient should assume the recumbent posture,
the abdomen being raised somewhat above the
chest by pillows. This is to facilitate the exami-
-nation & increase the size of the tumor & the inten-
-sity of the pulsation & bruit. [illegible] the
pulsation is most intense at one point [illegible]
-ing by degrees [illegible]
[illegible]
the expansion is uniform [illegible]
[illegible] the artery, the
swelling bounds & recedes under the hand [illegible]
as if it were alive & panting, the aneurism-
al tumor is immovable & dull on percussion
the bruit & impulse are constant, the disease
occurs chiefly between [illegible]
of all the cases are not [illegible] If the tu-
mor encroaches upon the diaphragm there will
be dyspnoea. Compression of the thoracic [illegible]
leads to inanition & if persistent to death [illegible]
[illegible] upon the [illegible] produces [illegible]
of the long [illegible]

may arise oedema of the lower extremity, &c. &c. Frequently in the early stages, the pain, arising at the seat of the disease, and extending to the elbow, shoulder, & fingers, is attributed to Rheumatism. This error is more likely to be made in proportion as the other symptoms are less marked. It is said that the aneurismal character of the pain may be detected by its sudden occurrence, after a blow, sprain, fall, or mental disturbance. This will rarely aid the physician in his diagnosis, as the tumor usually arises imperceptibly. Compression of the [illegible] & pneumogastric nerves, or of the cervical sympathetic [illegible] [illegible] [illegible]

Penetrating through the bodies of the Vertebrae, the Aneu-
-rism may exert a fatal compression upon the cord.
Pressure of the hepatic or choledoch ducts causes
jaundice, — of the portal or hepatic veins, ascites,
of the Vena Cava Ascendens, anasarca of the lower half
of the body, of the Kidney or ureters, inflamation,
loss of function & disorganization of the urinary or-
-gan. The latter circumstance would not necessarily
prove fatal, were only one organ so affected, for
in that event the other would take on increased activ-
-ity & thereby prevent the accumulation of those excrem-
-entitious principles, which if retained to a certain
amount poison the system. It should not be forgot-
-ten that the Solar plexus supplies all the abdo-
viscera, & that compression of it or its branches
produces distress & functional derangement of those
parts. Finally, there is an absence of the [illegible]
of surface [illegible] in abscess [illegible]
& great enlargement of [illegible]

are characteristic of encephaloid disease; and moreover in the former of these the pulsation is undulatory rather than a distinct shock. In an aneurism also, firm & uniform compression lessens the size of the tumor, which however recovers it's if the moment the hand is removed. The history, progress & present condition of the patient are to be attentively studied & but seldom will the surgeon have greater need of acuteness of discrimination, and a correct estimate of the value of symptoms than in the diagnosis of Abdominal Aortic Aneurism.

Weakened by the atheromatous deposit already described which is the first process in the development of the disease, the vessel is in a suitable condition for the changes which are to follow. The inner coats between & upon which the fatty material is accumulated, and which are more liable to disease because their nutrition is less perfect, are subjected to the pressure

of the latter. Thus their nutrition is impeded & they become attenuated more & more by the encroachment of the intruding matter, until at last a slight fissure or rent appears at the diseased spot. This increasing the two inner tunics finally disappear, and the external or cellular alone remains. The vessel is of course greatly enfeebled at the point where these changes have occurred & is unable to resist the rush of blood against it; consequently a little pouch-like enlargement appears, made up of the elastic coat & the sheath of the vessel, the inner coats terminating at the margin of the aperture. Immediately the plastic material of the blood is begun to be exuded on the sides of the sac & into the tissue around condensing them into a tough resisting wall, which delays the otherwise imminent rupture. The effusion of lymph is doubtless caused by several circumstances, as the rupture of the inner membranes, the pressure of the foreign substance & of the sac upon

the neighboring tissues. However this effort on the part of Nature to strengthen the aneurismal sac usually proves abortive, & the shock of the blood as it throws itself against the feeble barrier, stretches it more & more until at last some sudden excitement launches the sufferer into that undiscovered country from whose bourne no traveller ever returns. Death is not however always so sudden. The aperture may be small & hence be occluded by coagula, as in a case mentioned by Prof. Smith, [illegible] Aneurism, Jan.y 17th 1867, where a rupture of the [illegible] -nate into the Oesophagus was succeeded by repeated haemoptyses.

The Physician is Nature [illegible] -sistant. When she is weak he stimulates her to greater activity; when [illegible] restrains or directs her forces. [illegible] -ine his conduct therefore [illegible] investigate the character of the effort [illegible]

which she puts forth. Before entering upon a consideration of the treatment of this disease it will be proper to consider briefly the spontaneous cure of Aortic Aneurism. The fatal course just depicted is happily sometimes arrested without the aid of Art. This is accomplished in every instance by the deposition of successive strata of lymph, upon the inner surface of the pouch, thus finally obliterating its cavity entirely & leaving in its place a solid mass, which is afterwards disposed of by the absorbents. The calibre of the vessel is not obliterated, as in other cases, when the Aorta is the seat of reparation. Though none deny the universality of this healing process, the method by which it is brought about is the source of a difference of opinion. Many maintain that it is identical with the plastic effusion which accompanies inflammation. Most writers however hold that it is a gradual deposition of the fibrin of the blood, the [illegible]

particles of which suspended in the blood-plasma are brought to the interior of the unusual cavity & there remain not returning with the retreating current. As is generally the case where opposite views are supported by leading men, neither of these explanations is perhaps exclusively applicable. Both processes may, yea, must share in the nettle work, the former predominating when the neighboring tissues are the more encroached upon the latter under opposite circumstances. As will be seen hereafter the main objects of treatment are the increase of the plastic element of the blood & the retardation of its flow, conditions which favor the deposition spoken of. No one would be venturesure enough to excite inflammation purposely for the cure of Aneurism, for it is an agent too uncertain & hazardous, & too little under the control to be restrained within the bounds of safety.

We come now to the treatment of this disease, — would that a brighter prospect were before us. This but too evident from the hasty & desponding glance which the most comprehensive authors bestow upon this portion of my theme, that the disease is without a formidable antagonist among the agents of the Materia Medica, or the operations of Surgery. Yet that it has sometimes been arrested, both by certain sorts of treatment, as well as when left to Nature alone; the numerous instances recorded by the most eminent & reliable men, place beyond the reach of doubt. That these cases are very greatly in the minority is true, and the records of medical literature which have exhibited such rapid strides in almost every direction in latter years, are almost barren of improvement in this. We still rely with greatest confidence upon a method which was recommended by the ancient Hippocrates &

employed by Valsalva, whose name it bears. Modified according to the fancy of its adopters, its essential design remains unchanged, & the only difference lies in the means of accomplishing this. The object is mainly the diminution by depletion & other means of the force of the circulation, — for to this is due the enlargement of the sac, & those abortive attempts of Nature to fill its interior with coagulum. The most powerful means are made use of in the practice under consideration, venesection, spare diet, physical & mental repose being the more prominent. Valsalva was only partially aware how these produced their effects for he lived long before the day of microscopes; — we know that the abstraction of blood not only lessens the force & frequency of the heart's action — by diminishing its mass & density, but also increases the amount of fibrin — an object of no secondary importance as has been seen in treating of the spontaneous cure; — that the withholding of food is likewise sedative, there being no longer

that sympathetic disturbance to which great activity of the digestive functions gives rise; - that perfect quietude of mind & body calm & moderates the circulatory in common with all the great functions. The copious evacuation of blood, à la Sangrado, advised by the older writers are to be reprobated in the strongest terms. It is rarely that actions are not more injurious than beneficial, & an agent which, used in moderation is in the highest degree advisable, becomes it alone deadly for if employed in excess. A careful examination of this question convinces me that all the advantages to be derived from this measure are attained by a few venesections repeated daily for several days. The amount later to be regulated, of course, by the habit of the patient. In this [illegible] a greater amount is to be withdrawn, in anaemic, a less. Celsus's prudence must be imitated by permitting the blood to dribble away from the vein & syncope must be most anxiously avoided; for death has

been known to follow it. The object of this & the other debilitating measures mentioned is to be kept steadily in view. As already stated it is the immediate arrest of the enlarge-ment of the aneurismal sac, — through the diminution of the force of the current. This is the immediate goal of hope. When it is reach-ed, or when we have satisfactory reasons for believing that we have stayed the pro-ress of the disease, our next desire is the deposit of coagulum; this is a slow process & requires time. The recumbent posture, the darkened room, silence, as much sleep as can be taken, the withdrawal of friends, a small but concentrated diet, — are meas-ures upon whose strict enforcement suc-cess depends. The relief of pain requires anodynes. Liddell [illegible] the [illegible] as a prompt & certain [illegible] [illegible] prompt, certain, reliable & controlla-ble than Digitalis.+ [illegible] lightened reason, that restless [illegible] [illegible]

+ Chambers reports two cases as cured apparently by this method, & Prof Smith has a case now which is greatly benefited. [illegible]

comparing this paper, it [illegible] that [illegible] were degenerated, & that manifestations of Syphilis had existed. Atheromasia was invariably present in all. No wonder then that the fatality is so great, — the greatest wonder is that Pelletan by Valsalva's Method could cure two cases out of fourteen, & report all as materially benefitted. A case of spontaneous cure of an Aneurism of the Aorta is reported in the St George's Hospital Report, 3rd series vol. XII, Lond. '66 by Walter Moxon M.D. It was discovered in a post mortem examination of a patient who had died of Cancer. From a minute consideration of this & similar cases, the writer declares that the cure of Aneurism is always associated with wasting of the body or conditions otherwise equivalent to the method of Valsalva. In the same is also mentioned a case of Aneurism of the Subclavian & Innominate Arteries, greatly benefitted by medical treatment alone. I have seen no statistics showing the result of the employment of this treatment except those of Pelletan. The omission of information on this subject is explicable only by the infrequency of the disease. [illegible]

scarcely notices it. [illegible]
is but a symptom of disease after [illegible]
were we to cure it, the liability to recurrence
would still remain. The Atheromatous degenera-
tion is the essential disease. As to the cause,
mode of production, [illegible] development &
-ory of this we are ignorant. Whenever it [illegible]
it replaces & destroys the [illegible] of the part &
produces a permanent lesion & hence if we
could remove it entirely from the system we
could not restore the p[illegible] had been af-
-fected by it to their [illegible]. There are
no known means of [illegible] the [illegible]
adversary either by producing [illegible]
preventing its development. When [illegible]
circumstances are taken into consideration, we
can form some appreciation of the [illegible]
offered to the successful management of [illegible]
al Aneurism.

[illegible]
-dide of Potassium [illegible] cent suggestion. Several
cases have been lately [illegible]
but it should [illegible]

of the treatment just described. Combined with the latter all the benefit to be derived from it would be secured, and the suggestion here offered [illegible] whether this combination should not in all cases be resorted to. I confess that I should not hesitate to employ it, especially where there was a scrofulous or syphilitic tendency, conditions which are thought to give rise to the Atheromasia, & in which the Iodide is so efficacious. In the case following this remedy it will be observed was employed for nearly four months without any manifest benefit.

Can Electricity be employed here? This question was suggested to my mind by reading in one of Braithwaite's Magazines for 1854, of a case of Aneurism of the Ext. Iliac in which the surgeon had thrown in a galvanic current by means of needles which were made to penetrate to the interior of the sac. The [illegible] ment over the tumor which projected from the left inguinal region turned black & the attendant was [illegible] [illegible] [illegible] [illegible] [illegible]

disappeared & the tumor began to diminish in size. Improvement continued so rapidly that in an incredibly short space of time, the patient [illegible] in the English army in India was returned to duty! I had intended a close examination into this subject, but my thesis is already extended so much beyond the limits I had ~~[illegible]~~ designed that I must be brief. In spite of all the abuse that has been heaped upon this agent, I cannot but think that when employed judiciously & in moderation, we have none more efficacious [illegible] in the treatment of Aneurism, [illegible] with the Magneto-Electric Battery, now at our command we can regulate the current to suit our wishes. This instrument has this advantage over the Voltaic Battery, that it does not cause inflammation. Chew. Electricity [illegible] Althaus from an elaborate & experimental investigation of the [illegible] of Electricity upon the [illegible] its advantages as follows: [illegible] ing, either during or after the operation, the [illegible] of the needles being unaccompanied by [illegible] — there is no shock to the system [illegible]

[illegible]

little pain so that neither chloroform nor other opiate is necessary, no inflamation, suppuration or other bad symptoms follow. The same author says, "Bloodvessels were slowly & gradually obliterated by the negative pole & were filled with firm deposits of fibrine" & again "The more vascular & moist the tumor, the greater will be the effect, & cases of naevus & aneurism seem best fitted for the electrolytic treatment." He mentions a case of naevus which was entirely removed thus, & cases of hemorrhoids piles &c similarly treated. Making due allowance for the author's partiality the circumstances he details are so well confirmed by experiment & by the [illegible] observations of others not to claim our notice & credit. If the current is so safe & there is so little danger of inflamation, why may it not be applied in the case under consideration? The tumor is in an exposed position & therefore within the reach of external medication. The chief obstacle is a serious one [illegible] the occlusion of the Aorta as well as of the [illegible] It seems that this could be prevented by inserting the needle [illegible] into the [illegible] & [illegible] the [illegible] [illegible] of the effect [illegible] to that portion of the

tumor which presented itself above the surface [illegible] the cure thus auspiciously begun be continued by Nature [illegible] until the whole cavity was loaded with the deposit. At any rate would not the arrest of the enlargement produced by the Electrical agent materially aid the efficacy of the Med. Material. I append the case already so often referred to in this [illegible].

Case of Aneurism of the Abd. Aorta terminating in sudden death from hemorrhage by the rupture of the sac into the Thorax.

The patient was a sailor, about 38. He was under my observation at the Balt. Infirmary from the [illegible] to his death Jan. 18th 1867. During this period but little change was manifested in his condition. So stationary was the latter, so far as evidenced by symptoms that it was impossible to say with any probability whether he was improving or becoming worse. Just before death he expressed to his attendant the impression that the tumor was diminishing in size. Said he had had [illegible] yes before. Ahead suffered from [illegible] tumor. The tumor was first discovered above the [illegible] [illegible] came under the care of [illegible] [illegible] that time till his death [illegible] [illegible] [illegible].

X ... to die. [illegible] projecting tumor just to the left of the Xyphoid Appendix, below the ribs. Aneurismal Bruit & Pulsation were distinctly perceptible. Pains in the back, groin, hip, particularly of the left side, lower extremities & abdomen were a source of constant suffering. Relief was obtained by lying upon the stomach. He complained greatly of difficulty in micturition, & strong efforts were frequently necessary to expel the urine. The bowels were constipated. On the 16th Jany no evacuation had occurred for 6 days. Respn was perfectly free throughout. Pulse very frequent & feeble. Countenance anxious & painful. Anaemia, weakness, & anorexia were present. The patient took moderate exercise at his option & was walking about but a few minutes before his death, wh: occurred very abruptly on the evening of 18th Jany '67. The man in the adjoining bed stated that after walking across the ward & smoking his pipe, he lay down but hardly had he done so when he suddenly sprang up in his bed & immediately falling back gasped his last. — Post Mortem. Tumor very large involving the whole extent of Abdl Aorta reaching above the Diaphragm & enlarging the Aortic opening, whilst its inferior extremity was buried in the Psoas muscles, into the substance of wh: it had eaten its way & extended on both sides of the bodies of the Vertebrae a considerable distance. The Rupture occurred at the left

into the left side of the Thorax which was filled with blood. Inner living membrane of the sac of a vermillion color. Interior of tumor contains some deposits of lymph, devoid of blood-globules & arranged in layers one upon another. Dorsal Vertebrae much eroded, but not so as to expose the cord; hence the absence of very great pain & paraplegia. Heart flabby & much degenerated by fatty deposit; under the microscope oil-globules can be seen in abundance. The feebleness of circulation resulting from this degenerative change accounts for the delay in the rupture of the sac. Fatty degeneration & Emphysema of Lungs; wide edges of fat depend from their borders. Liver unimpaired. Kidneys degenerated to such an extent that death would have resulted in a very short time from Bright's Disease, had the Aneurism not proved fatal.

AN

Inaugural Dissertation

ON

Typhoid Fever

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

Robert A Frey

of

Brandonville W Va

Session of 1867 & 1868

Typhoid Fever.

This, perhaps, is one of the most interesting among the Zymotic affections. Besides it a disease which knows no bounds, not being confined to Land or Sea. Jail, Hospital or Prison. Becoming common in some localities. Cases springing up sporadically in a region of country where the disease had become prevalent. Extensive observations after a thorough understanding of its symptoms, uncovered to the influences that operate in the production such, and termination

become so common among all classes and looked upon as a grave disease one in which we may both hope and fear. Let us industriously improve by imitating the examples set before us by our worthy Professors. Let us individually and collectively as students strive to improve our art.

The disease will probably continue to be called typhoid fever. Let it be that or Enteric. We must without further apology for choice of names endeavor to be able to recognize it in all its forms which may be classed as follows.

1st. The simple or mild 2d. The Intermediate

3d The Malignant.

It may be difficult to say where the line is to be drawn, so very gradual is the transition from the one form in to the other, in a large majority of cases little difficulty will be found in recognizing it.

The accession of Typhoid form is quite different in different cases, some come on suddenly without any premonition, some have a period of incubation, varying from ten to fourteen days, the disorder sets in slowly and insidiously, with languor in a day or two then it chills, headache, (which last it

common symptom,) thirst, pains in limbs, weakness with a tendency to diarrhoea and sickness. Restlessness; face languid and pale. The appetite is greatly impaired; the pulse grows quick rises to 120 or higher breath offensive; tongue dry and brown or red and glazed. Of the symptoms especially of diagnostic importance are loosness of the bowels and Epistaxis

At commencement of second week or a day or two earlier, the typhoid rash appears; rose-colored dots on chest or abdomen; these dots disappear on pressure; and fading away to be replaced by a fresh crop. Hemorrhage is a frequent symptom making

its appearance by Ebriety. which may occur very early in the disease. In mild cases it is not usual for it to become profuse at any stage. Delirium is not a constant symptom of the simple or mild form of the third form. though its occurance on waking from sleep or during the night is not at all uncommon. The mind however always acts correctly when the attention is drawn to any particular person or subject

Continued= Among the earliest symptoms mentioned of Typhoid fever is Lypothymia. The transition from the mild into the intermediate form is most always attended with

increase of fullness of the stomache and bowels. This symptom generally continues until the begining of convalescence, or the termination in death. The importance of carefully studying the symptoms of Typhoid fever cannot be over estimated, for from the symptoms we form our diagnosis and prognosis, and learn the proper direction to conduct the treatment. There are certain symptoms belonging to the disease which are of especial importance both as regards their constancy and their relations.

Anatomical Lesions—

In regard to these my own observations for a discription of the changes found

in the several organs after death from Typhoid fever can not be given. for in the country we are not permitted to enjoy opportunities of this knowledge concerning the changes found on dissection. we can only obviate this sensible defect of our own experience. by studying the lessons taught us by the Professors of our Alma Mater. That there are anatomical changes which are especially characteristic of the disease and which are so seldom wanting is true beyond a doubt. such is the affections of the elliptical patches of aggregated mucous follicles in the ilium denominated the

glands of Peyer and is quite as characteristic of the disease, as the peculiar pustular eruption is of small pox. I believe we owe to Louis the credit of fixing its precise relation to this form of fever. Other glands or organs may suffer lesion, for Wood says. There is scarcely a single organ in the body in which signs of inflammation are not sometimes found after death from typhoid fever. The spleen becomes affected so as to be increased to four or five times its usual size and sometimes softened to the condition of a bloody pulp. The liver is less frequently affected in this

respect. There are other lesions which are incidental and if noticed would require only to be mentioned.

Causes — Typhoid fever differs from some others of its class in not having any precisely known cause. There is a great diversity of opinion about the true cause. It certainly is generated by filth and unwholesome food yet I have seen well defined cases where perfect cleanliness was observed. These cases seemed attributable to the vicissitudes of weather and some unknown exciting causes. With us in Western Virginia it seems to be governed by the season prevail

ing oftenest during the autumnal and winter months.

Contagion= Here again we find a diversity of opinion, and we find Professional men becoming vexed over this question. One will say that if contagious is surely feebly so. The teachings of Wood and Professor McSherry are that it is if contagious at all only feebly so and under peculiar circumstances. I attended a family during the months of March and April in which seven were sick of the disease. My anxiety for their recovery led me to attend regularly and spend as much time with

them as possable. After my attentions were no longer needed I felt that I must be laboring under the same disease. and that I was one of those "walking cases" as they are called and are sometimes met with. I did not take my bed for more than an hour or two at a time during the day throughout the entire course of the attack my friends said I was slightly delirious for several days and that my peregrinations about the street particularly noticed but as [illegible] remarked the mind acted correctly when the attention was drawn to any particular subject. I believe that I am susceptible

disease that an inherent predisposition to this disease existed in as in many other persons. Age has some influence on the permission of the disease. Early and middle life seems to be the most favorable, and is supposed to be confined to early and middle life old persons are not so apt to take it as the young. The duration of Typhoid fever varies in different cases and under different circumstances. The average duration may be set down between twenty and thirty days cases of unusual persistency continuing for six or seven weeks. I believe the duration to be generally from three to six weeks.

Complications — That Typhoid fever

is occasionally complicated with other diseases is beyond a doubt true. with some in the beginning, with others, and more often, not until an advanced stage of the disease, the earliest are bilious remittent fever and acute pneumonia. The complication with acute pneumonia I have seen Pleurisy and erysipelas I have never met with. At a late stage of the disease hemorrhage from the bowels in fatal cases ensues and tis then that this complication is of more common occurance. Preceded by the most frequent of all complications bronchitis. The most frequent of the accidental inflamation is peritonitis the result of perforation

occuring some time [illegible] least expected. It is needless for me to mention the signs indicative of its occurance for it is rare, however that there can be any difficulty of ascertaining its existence, not withstanding like the fever its self is to a certain extent latent.

Diagnosis = Typhoid fever is not always easily recognized in the begining. and this is so Especially with the young and inexperienced Practitioner he must patiently await the development of some of the prominent symptoms which occur later in the disease. Yet in the majority of instances it may be

distinguished by the Experienced observer. The symptoms in the beginning of sudden cases are the same as those which usher in other febrile affections. hence the difficulty of deciding the precise character of the attack, Mention has been made of some of the most characteristic symptoms. The continuance of fever with [illegible] exacerbation of febrile heat, constant headache, tympanitis, bronchial rales, rose colored eruption and the tendency to diarrhoea, and the susceptibility to the influence of Cathartic medicine all lead to positive conclusions as to the true character of the disease.

there are other symptoms superadded in the intermediate stage such as dry tongue with a brown stripe down its middle slight collection of sordes about the lips teeth and gums, twitching of the tendons deafness delirium etc

Prognosis

Since it is not an easy matter to arrive at any positive average result on account of the variable influence which operate in its production march and termination. and as it has been considered a grave disease, a favorable prognosis in any case can very rarely be pronounced with absolute certainty, yet there may be approximated

for no other acute disease under proper management, more often terminates in recovery. No case however mild it may seem is free from danger none so grave but that the patient may recover.

Treatment.—

This is a question of great importance. To say how far it is needful for us to interfere in the management of typoid fever. Too much may be, and often has been done, success in the management of the disease is attributable to great care being taken of the patient, and what medicines are given be well timed. For the natural tendency of the disease is toward recovery. To know

how and when to interfere constitutes the successful practice; to act with deliberation is the golden rule, It should be recollected that the fever cannot be suddenly broken up by any plan of treatment, we may do much I think to moderate the violence of the disease and avert in many instances a fatal termination, by close watching on our part we may be able to do the patient the greatest amount of good. Condition of the system, stage of the disease age sex individual peculiarities; hab its previous disease; and the tendency to complications all demand constant attention, without these no hope can be had of a successful practice

Therapeutic Agents.

These means are various each plan of treatment has its advocates a different plan of treatment consists more in the period at which certain remedies should be given than in their choice. in speaking of them severally Emetics seem to come first in order and by many practitioners are considered of eminent service administered in the begining of the disease and when diarrhoea is not present an emeto-Cathartic so as to produce a complete evacuation of the bowels after which being content with daily attention of the body and bed linen as cleanliness will aid us

materially throughout the progress of the disease it is generally thought best that the bowels should be moved once or twice in the course of twenty four hours if this does not occur naturaly laxatives should be administered Gridlety water is a very acceptable dose to the patient and is usually sufficient to accomplish a regular action of the bowels The morning is the most appropriate time for administering these agents that their effects may be accomplished before night as a restless night should be avoided when ever possible The local abstraction of blood may be of great service &

should prefer cups for the removal or abatement of Epigastric pain Abdominal pain and tenderness depending on the state of the skin during the elevation of febrile excitement

Diaphoretics = These are the means proposed to influence relaxation of the surface and the reduction of febrile heat. The neutral mixture, citrate or acetate of amonia, sweet spirits of nitre according to the opinion of the practitioner. The neutral mixture or Effervessing draught is most generally chosen and administered every two or three hours during the day when the skin is hot and when not contraindicated a lower

Powder at night to induce moisture and procure rest. Camphor possesses a marked tendency to produce diaphoresis and quietude and may be administered with the above remedies. The admission of fresh air into the sick room is of importance in the management of the disease and it takes the place of many little delicacies together with the ordinary conveniences which the poor have not.

"Veratrum Viride - This is a newly introduced article has some advocates and opposers. used as an arterial sedative controlling the hearts action it has been considered val

uable and occupies some promi
nence among the therapeutic agents
Begining dose four to five drops inc
reasing the quantity one drop at each
successive dose every four hours un
til the dose of x gtts is reached when
its effects should be displayed I
have used it in this way and ha
ve no cause to regret relying on
its influence. After the full influence
was reached I diminished the dose
to 5 gtts and was able to controll the
pulse pretty well

Astringents

These are of much im
portance Opium, tannin, creosote
acetate of lead, etc. of Opium

its value depends on the discrim
ination with which it is emplo
yed it is highly estimated as
a stimulant and as an astring-
ent it is useful to controll dia
rrhoea given in the form of
Dovers Powders When hemorrhage
from the bowels occurs Opium and
the sugar of lead are considered
the best means for its arrest taken
with vinegar to prevent the
acetate from being converted into
the carbonate of lead. Creosote
this I have tried and found
it all that was required to
arrest hemorrhage from the gums

and nostrils. Employed in solution.
Fomentations = the ordinary applications are as good as any. Applied warm as can be borne, they should be regularly applied when they succeed cupping upon the abdomen, much good often results from their employment. They are seldom objectionable and frequently become necessary.
Blisters = These are powerful agents for good and evil. I have used them under the direction of my Brother and have witnessed happy results. But I think great caution should be used

in their employment especially when applied upon the abdomen Oil of Turpentine

As to the value of this agent as a remedy and that it is so useful when employed according to the writings of Wood who has done a special and lasting kindness to Practitioners much testimony could be adduced, the occurrence of the dry state of the tongue is the signal for its use given usually in doses of ten drops every two hours but some times increased to fifteen or twenty drops

Tonics & Stimulants

In the employment of tonics and stimulants the nicest discrimination is very often requisite in deciding upon their use. The state of the pulse, the skin and the muscular demand consideration. If the pulse be soft and compressible the skin cool and moist the strength of the patient considerable prostrated the indications for a stimulant are pretty surely made out. And when the pulse is weak and frequent skin some what hot and dry a stimulant cautiously administered is often production

of a marked alleviation of the symptoms. I have been taught that after the use of tonics and stimulants if the pulse diminish in frequency and increase in volume, the skin lose its heat and dryness (if these have existed) and become moist and the patient be disposed to sleep the remedy is acting well and should be continued. If instead of this amelioration the symptoms become exasperated, the remedy should be omitted, much discussion concerning the reliance to be placed in Quinia has been made. Affords its advocates in districts where

Periodic fevers prevail during the stage of prostration it becomes a favorite resort the effect sometimes produced in improving the appetite and strength is almost magical. Wine whey and sometimes pure brandy become absolute and a very essential point is not to forget the use of Beef tea which in its proper use can not be too highly recommended to young practitioners we are taught the usefulness of each of these means by several of the professors and it is only left for us to

realize what we have heard on this interesting subject. Carbonate of Ammonia enjoys a reputation among its class. Opium is highly estimated as a stimulant when the brain is not involved. I have found the simple bitters to answer a very good purpose in preventing night sweats.

As regards local affections they must be attended to and such treatment directed to them as they severally demand. Too much attention to the diet can not be paid to insure successful management of the disease. We should can

tion the friends of the sick
that their brighter hopes and
[illegible] prospects may be bligh
ted by one little act of impro
priety in the regulation of diet.

Robert [illegible]

Feb. 11th 1868.

An

Inaugural Dissertation

on

Cicuta.

Submitted to the Examination

of the

Board of Regents and Faculty of Physic,

of the

University of Maryland;

for the Degree of Doctor of Medicine,

By

Camillus L. Pinkston

of

Alabama.

July 11th 1868.

Diabetes.

But we [illegible]

[illegible]

pathology and treatment [illegible]

ease has been satisfactorily [illegible]

[illegible] Dr [illegible]

his lectures upon diabetes "you will

find that talk is always in an

inverse quantity to practical [illegible]

edge". Diabetes was observed [illegible]

ancient physicians, but they [illegible]

[illegible] any unusual flow of urine

as diabetes, and it was not [illegible]

1684. that Dr Willis of [illegible]

lected sugar in the [illegible]

tes, and [illegible]

been considered [illegible]

feature in the disease; and [illegible] nothing has been considered or is considered as diabetes without this remarkable quality of the urine.

The next great question to be settled, after ascertaining that sugar in the urine constituted the true diabetes was to determine from whence it came; and here again we find scientific men wandering amid all kinds of dark and tortuous theories, [illegible] ting the disease in the kidneys, [illegible] other in the lungs, another in the [illegible] ach or brain, and again others [illegible] ting it in the liver.

Galen and most of the ancient

authorities following him adopted his theory "supposed a high degree of irritation to exist in the kidneys in consequence of which they attract the matter of the urine with great force from the [illegible] and an equal degree of [illegible] and relaxation to exist in its orifices and pores. So that the same matter flows off unchanged as soon as it reaches them.

Dr Goode (at the time he wrote) said that even the nature of the disease was a point of controversy, and even in our day of improvement in medical science the controversy is still going on. Dr Willis [illegible]

covery of sugar in the urine of those laboring under this disease, advocated the theory: "that diabetes is rather an immediate affection of the blood than of the kidneys, and thence derives its origin, for the mass of the blood becomes, so to speak, melted down, and is too copiously dissolved into a state of serosity, which is sufficiently manifest from the prodigious increase of the quantity of urine which can not arise from any other cause than from this solution and waste of blood."

Sydenham adopted the same opinion, and remarks further that those who have long laboured under

an intermittent, and have been unskilfully treated, and especially old persons, sometimes fall into diabetes.

Dr Jordan one of the most recent authorities upon diabetes, makes the same observation, but attributes it to irritation of the sympathetic nerve which is common to both diseases.

Dr Goode's theory was that diabetes is a disease seated in the kidneys alone, and dependent upon irritation or inflammation of the renal organs.

Dr Chambers one of the most theoretical of modern authors, defines diabetes to be an arrest of construction.

Sugar is a material generally used, which ought to be assimilated as food and assist in the growth of the body passes into the current of circulation and out again unchanged and is ejected in the urine. And here I refer not only to the sugar which is taken as such into the mouth, but also to that which is formed out of starch by the action of the saliva and intestinal juices: so that in one thoroughly diabetic the whole of the saccharine and amylaceous matters in the dietary are utterly wasted. Trying to feed a diabetic patient upon them would be just the same as feeding him upon nothing at all.

Dr. Bennett of Edinburgh, another one of the great lights in the profession, endorses the theory of M. Bernard which is that a certain amount of it, that is sugar may, as a result of absorption from the alimentary canals, find its way into the blood. But he has demonstrated that in dogs fed entirely upon animal food, sugar may exist in the liver and in the blood of the hepatic veins, while it is absent in the portal vein. Moreover he has demonstrated that sugar is a normal secretion of the liver in all animals, from man down to lime as the mollusca; and that, moreover, it is secreted by the liver of the

foetus. He has proved experimentally that this secreting function is increased and diabetes produced by irritating the eighth pair of nerves at their origin at the fourth ventricle: while on the other hand destruction of these nerves destroys its formation.

M. Bernard has also ascertained that although section of the pneumogastric nerves destroys the formation of sugar in the liver, it is restored by artificially irritating their central and extremities, and that diabetes is produced in the same manner as by irritating their origin in the brain. He was therefore led to conclude that the nerves

vous action necessary for the secretion of sugar does not originate in the brain to be transmitted directly along the pneumogastric, but indirectly and by reflex action, the vagi being incident nerves, the medulla oblongata the centre, and the solar ganglion the excident channel. Following out this theory, he found that when the respiratory function is violently stimulated, sugar appears in the urine, and that whenever ether or chloroform is given a temporary diabetes is produced. He further supposes that in the same way the lungs thus act, by reflex nervous influence upon the liver, so increased a

tion of the liver acts upon the kid-
neys: consequently that the sugar pro-
duced in excess by one organ is ex-
creted by the other. Continuing his
researches he arrives at the conclu-
sion, that the liver does not secrete
sugar directly, but a substance
which shows all the characteristics
of moistened starch and is chang-
ed to sugar by the aid of a ferment
and the sugar thus formed is de-
composed by oxygen after it has
passed into the lungs and disap-
pears. It follows that the [illegible]
of sugar in the circulation and its
occurrence in the urine is [illegible]
dependent not only upon [illegible]

ed action of the liver but also upon diminution of the action of the lungs.

It would be proper here as sugar is the most characteristic sign in the disease which we now have under consideration to inquire something in regard to its digestion and use in the animal economy. In connection with the fats it was at one time thought to be burned up in the lungs for the production of heat. Sugar and starch from which sugar is produced in the economy are not digested in the stomach but pass into the small intestines where their digestion and as

simulation commence. The starchy substances taken as food are converted into glucose or sugar on coming into contact with the intestinal juices, while the greater part of the sugar is itself absorbed unaltered and a small quantity is always converted into acids principally lactic acid. It is absorbed by the intestinal capillaries and enters the blood you might say almost directly. Sugar then is necessary for health and produces no bad consequences, unless more of it gets into the blood than is necessary for the healthy working of the system. Unless more than four per cent.

gets into the blood we do not generally find it in the urine or secretions, but if more than this quantity (i.e.) four per cent gets into the blood bad effects are produced and the kidneys are called on for its expulsion from the system.

There is no doubt than according to the experiments of most reliable authors that not only is much more sugar produced in the system than can be accounted for from the amount of food taken but also that assimilation is deficient in diabetes. The experiment has been tried again and again of putting an animal upon animal food for days together

or, yet the experiment is always the same and we find an abundance of sugar in the liver. Truly the liver seems to be an internal manufactory for sugar.

Dr Dalton says that the formation of sugar in the liver is by two processes. First, the formation in the tissue of the liver a substance termed glycogenic matter having some resemblance to (dextrine, a substance obtained by the continued action of dilute sulphuric acid upon starch at the boiling temperature,) into sugar by a process of transformation and that the whole process is completed

in the liver instead of the lungs as M. Bernard supposed.

What is the cause of defective assimilation of sugar? that is what I think has never been discovered or at least made known and until we discover the cause of this defect I am afraid we in the Medical profession will never learn anything definite towards the treatment or cure of this disease. For while one supposes it to generate in the lungs, another in the stomach and another in the brain and the nerve centres &c.

Diabetes is not a common disease in this localities. It seems to be

more common in Great Britain.

Dr Watson has a very long discourse on the disease in his lectures and enlightens the Medical profession a great deal on the subject. It occurs more frequently after thirty years of age and is more common in robust individuals. The causes are reported as various: excessive indulgence in cider beer, liquors of all kinds, excessive venery &c. Anything which has a tendency to disturb the digestion or to [illegible] the nervous and vital functions would be considered as exciting causes in persons who are predisposed to the disease, for it [illegible].

there must be some peculiarity in the constitutions of some persons favorable to the development of this disease. The pathological lesions are various. Sugar has been detected in the blood and lymph. The bile is of a reddish hue and contains sugar. Congestion of the brain is [illegible]

Dr Jordan and others have observed lesions at the base of the fourth ventricle. The lungs are frequently healthy, but sometimes are tubercular. The stomach and intestines are sometimes found very much dilated, in other cases presenting an unnatural appearance. Lesions of the [illegible]

among the most frequent and patho-
logical conditions; congestion and
hypertrophy are frequent; the color
is dark and of increased consis-
tence. Sugar is usually abundant,
unless patient dies slowly, or from
some febrile affection, in which
case sugar frequently disappears.
The kidneys are generally conges-
ted from overwork. Emaciation is
generally one of the first symp-
toms, but is frequently not percept-
ible until towards the close. The
skin is usually pallid; it is gen-
erally dry and is the seat fre-
quently of eruptions of various
kinds. Anthrax is one of the most

frequently fatal. It was first notic-
ed by Cheselden in 1768 as being a
frequent occurrence in diabetes. They
usually appear upon the back of the
neck or trunk; when they suppu-
rate the pus is liquid and choc-
olate colored. Grangrene is also
said to be a frequent complication
by some authors. Neuralgia is fre-
quent. Insomnia and restlessness
are also frequent and distressing
symptoms. The appetite is usual-
ly strong and thirst excessive.
Dyspepsia is said to be frequent
at the commencement of the mal-
ady. Diabetics are generally con-
stipated and the deficiency in

the quantity and quality of the bile is supposed to account for this symptom. The urine is of a pale straw color and is passed off frequently and in large quantities. Its odour is peculiar somewhat resembling the smell of sweet hay or that of milk. Dr. Watson likens it to the smell of an apple chamber. Its taste more or less decidedly sweet. A healthy person passes from one to five pints of urine in twenty four hours. Patients in diabetes have been said to void forty pints in the same time: thirteen and fourteen are very common according

to Dr Watson. One Italian physician reporting two hundred pints in twenty four hours which seems to be very improbable.
Healthy urine by Dr Prout is placed (specific gravity between 1015 and 1025: distilled water being represented by 1000. He also says the specific gravity of diabetic urine varies between 1020 to 1050, that he has often seen it higher than this but very seldom so low. It ranges between 1030 and 1060.
Its average may be taken as 1040. In ten pints of urine the quantity of solid material excreted in twenty four hours, would amount to [illegible]

pound to one and a quarter pounds in twenty four hours; the sugar varies from a half pound to one and three fourths pounds daily.

Tests. Dr. Watson gives as a test for diabetic urine, the one known as Moore's test; which is to boil the urine in a test-tube with an equal quantity of liquor potassae, when it assumes a claret colour of more or less depth according to the quantity of sugar present. Another test is what is familiarly known as Trommer's test: [illegible] of copper in solution is [illegible] with the suspected urine [illegible] a faint blue tint. [illegible]

is then added in excess and if sugar be present a precipitate of oxide of copper first falls; which is redissolved forming a dark blue solution. If this be gently heated until it begins to boil a dense deposit of red sub oxide of copper takes place.

A very simple test and one which I have seen applied is to put a drop or two of the suspected urine on a piece of tin and apply heat; if there is sugar in the specimen a peculiar tawny colour appears.

Dr McSherry the distinguished professor of the Theory and Practice of Medicine in the University of Maryland says that healthy [illegible]

rine will also produce the dark de-
coloration.

Albumen is found in the [illegible]
of some diabetics: some [illegible]
an alarming symptom while the
ers regard it as favorable. Claude
Bernard regards it as a favorable
symptom.

The prognosis in diabetes is al-
ways unfavorable as to cure. Pa-
tients are sometimes said to be
cured, when they are only relieve
ed for the time being and are
never permanent cures.

The treatment varies a good deal
running from one extreme to an
other. A very good sign that [illegible]

ing as yet has been discovered at all reliable for the cure of the disease. Diet is considered the most important part of the treatment by most physicians. And while some say that feculents and sugar are worse than useless we find others feeding their patients upon sugar and among this latter class I think we may place Bennett of Edinburgh; and the latter class say we are still ignorant of how to cure the disease and still further the advantages of a strict animal diet are overestimated. What a diet devoid of sugar [illegible] hunger and thirst, [illegible]

amount of urine, but does not
cure the disease. I should argue
that on this account it should be
employed as a palliative, when
it can be employed without injur-
ry to the strength of the patient, more
especially when frequent calls
to urinate through the night dis-
turbs the patient in his sleep.
Notwithstanding the high au-
thority of Dr Bennet: I think
most physicians agree to the treat-
ment which seems to improve the
patient's general health not only
by medicines but by diet and
all the hygienic remedies which
lay in our power. We should

cuits which are now prepared in London on a large scale especially for diabetics. I would also give alkalies, and recently the nitrate of soda has been suggested as being especially applicable. It is said to aid the digestion of the saccharine articles of food, and this seems to be the great end to be attained. For when we find a substance, or any means for promoting the digestion and assimilation of sugar, we may be able to cure this very singular disease.

An

Inaugural Dissertation

on

Yellow Fever.

Submitted to the examination

of the

Provost, Regent & Faculty of Physic

of the

University of Maryland

for the Degree of

Doctor of Medicine,

by

J. Barbour Newman Jr. of

Orange Co. Va.

Yellow Fever.

This is a disease of warm climates and most common in cities and garrisons, located on rivers and in the vicinity of large bodies of water. A temperature of about 70°, lasting for several months during the summer, seems favorable for its production. In the United States, Norfolk, Charleston, New Orleans & New Haven have frequently been the seats of its ravages. The more

Northern cities are seldom
scourged with it, though at long
intervals it prevails to a small
extent in New York, Boston &
Baltimore. Some medical Au-
thorities are of the opinion
that it is a contagious disease,
others that it is non contagious.
Among those who are of the latter
opinion is the distinguished
Dr. Stone of New Orleans. The fact
that one member of a household
may be attacked and all the others

escape is I think a strong argument
in favor of its being non contagious
Again, a whole family, or nearly
the entire population of a particular
portion of a city may be suffering
with it, & yet those in the im-
mediate vicinity are exempt.
The prevailing opinion now
among those who have had most
experience, is, that it is a specific
disease.
Probably the first & most frequent
symptoms are those of fever, fever

across the bowels, in back & limbs,
but it frequently comes on abruptly
in the midst of health. If often
attacks the patient at night than
during the day. At the outset
there is nearly always a chill
which gives way to the hot
stage when the patient complains
of pains about the orbits. Sometimes
there is delirium during the
fever. There is tendency to
hemorrhages in all its forms,
though less in the chronic than

any others. The pulse ranges from the natural state to 130 & perhaps as high as 140 — Sometimes very slow — Either extreme is significant of danger. Yellowness of the skin & black vomit are the most distinguishing characteristics though these are not always perceptible. During this stage of the disease, which is the first 8 lasts about five days, the skin is hot & dry, face flushed, eyes red & watery, tenderness about

epigastrium, nausea & vomiting.
These, I believe are the most-
characteristic symptoms. If the
case is to be a fatal one, the patient
generally dies about the fifth-
day. Suppression of urine, hemorrhage
& black vomit, when present, are
fatal signs. The second, or
stage of remission occurs at
different periods, but generally
between the third & fifth days.
It is characterized by an abatement
of the fever together with all

the other signs, except the tender-
ness in the epigastrium which
is often increased. At this about
this time that the patient either
dies suddenly with black vomit
or from great prostration the
disease assumes a typhoid form.
In more favorable cases there
is a reaction & the patient re-
covers by the ninth or tenth
day. Still less severe cases get
well in a much shorter time.

Post mortem examinations do not show any remarkable changes. It seems to have a preference for the fluids over the solids of the body. The parenchymatous organs is often effected to any considerable extent: The oesophagus is frequently found inflamed & deprived of its epithelium, probably by the acid matter vomited. The chief force of the disease seems to fall upon the alimentary canal & particularly the stomach.

Black vomit is generally found in the stomach, though none may have been thrown off during life. This fluid is not black, but of a dark colour, & is no doubt blood, which has undergone a change by coming in contact with the acid secretions of the stomach. The mucous membrane of this organ, & also of the bowels is often reddened, & shows signs of inflammation. The liver is sometimes engorged with blood & often presents a peculiar

yellow colour - It is seldom inflamed. The different coats of the brain are occasionally injected & serum effused into the ventricles.

I know nothing as to the precise nature of this disease, but its cause, is as specific, as that of small pox. There is a prevailing opinion, that yellow fever & remittent are produced by the same cause. Such does not seem to me to be the case. It is a

fact, that both diseases may prevail in hot countries, where much miasmata pervades the atmosphere to much extent. But in many parts of the world, where the latter disease is common, yellow fever has never been known to exist. Again one is partial to cities, the other is not, one may recur several times, the other, seldom more than once, & both the symptoms are different.

Strangers are much more subject to it than long residents, & white persons more so than negroes. Some of the predisposing causes are, exposure, bad food, sudden changes of weather & intemperance. Evening, night & early in the morning are the times when the cause seems to be most energetic.

In the incipient stage it is extremely difficult, not impossible to discriminate

between this disease & other fevers
particularly those of a malarious
character. However, there are
some symptoms, which will lead
us to a probable inference
as to its nature. Such, are
the severe pains in the loins
& lower extremities, especially
the front of the leg, & orbits
with a peculiar darkish red
color about the upper part
of the face. Later the extreme
irritability of the stomach [illegible]

in diagnosing. The most unmistakable signs, though unfortunately a fatal one in most cases, is the black vomit. Unlike most other fevers the elevation of chilliness & heat is of short duration. Intense fever soon sets in & the patient complains that he is burning up. This is continuous, & ushers more severe about evening than any other part of the day. The time for the occurrence of the fever varies with the fo

of the disease. In doubtful cases the locality & surrounding circumstances should be taken into consideration, whether, for instance, there was sufficient cause to produce the disease, whether it was present at that time, or not; & whether the patient might not have been exposed to it elsewhere. One peculiarity is the great depression of spirits, which the patient is subject to, even after the disease is developed.

It is said, that in some cases death is longed for & the sufferer beseeches his attendants to kill him. In many cases, when the muscular strength is not much impaired the patient has a constant desire to rise from his bed & walk about, & unless watched very closely will invariably gratify this desire. Timidity is a remarkable feature of this disease. The patient may be made to believe that the most summary punishment

will be inflicted unless he does
as he is told. Certain seasons
of the year are favourable for
its production therefore if a
man exhibits signs of yellow
fever during winter or spring
we should be very particular
in our diagnosis, for the disease
rarely occurs after the severe
frosts of autumn, or before mid
summer. Under ordinary cir-
cumstances, & to one who has
seen much of it, & well acquainted

with its course & that of other fevers common to the same locality, it is easy to discriminate, but to an inexperienced practitioner the diagnosis is extremely embarrassing.

The prognosis must be regarded, most commonly, as unfavorable, though much depends upon the person attacked, the character of the epidemic & the symptoms. Sudden & great prostration must always be regarded as a bad omen.

though there are recoveries when
these & other fatal symptoms
indicate a speedy termination
in death. The patient may be
apparently free of all signs of
the disease, when black vomit
occurs & death immediately ensues.
It varies greatly in violence
in different localities, thus,
in one portion of a city where
an epidemic prevails, the mor-
tality may be as great as one
in five & occasionally greater,

in other sections of the same city the deaths may not exceed one in five. Different epidemics in the same place are not always alike fatal. The first cases are not so likely to recover, as those that occur later. The violence of the disease seems to abate from the time it breaks out, until it disappears. Natural habits, modes of life have a decided influence. In New Orleans among the Irish & German populations it has been

more ideal than with the French & Americans. This is no doubt in due in a measure to the fact, that the former two nations are generally found in the lower walks of life & consequently can't place themselves, like the latter, under favorable hygienic conditions, nor do they have recourse to as good therapeutical treatment. With strangers, who are intemperate & plethoric, the disease is almost certain to prove fatal, also

with children the ravages are greater than with adults. A gradual abatement of the febrile & other symptoms is more to be wished for than a sudden disappearance of the more fatal of these. The latter condition is generally a deceitful calm, which is only the foretaller of a coming [illegible] storm. If those forms, which are very mild & [illegible] in a few days, be excepted, the danger of an attack is

proportionate to its shortness, cases which continue to the tenth or twelfth day, unless typhoid symptoms be present, generally get well. In this, as well as in other fevers of a kindred character, long remissions are favorable prognostic signs. The appearance of the patient's face, which is generally that of great dispair & mental agony, is apt to impress a young doctor with the idea, that the unfortunate one is nearer, "that undiscoverable country, from whose

honour no traveller returns" than he really is & consequently a prognosis made under such circumstances is more unfavourable than it should be. In so insidious a disease, a physician, unless forced to do so, had better guard his reputation by not expressing any decided opinion as to its course or termination.

No specific remedy for yellow fever has as yet been discovered; the treatment is various & the medicines employed by different men almost

innumerable. Such is the diversity of opinion, at the present day, as to what is the best therapeutical treatment, that I am inclined to the belief, that as little medicine as possible should be given, & that the chief aim of the physician should be to keep the patients mind & body at rest: how far I think any preconceived plan for its management should be followed, but treat the symptoms as they arise in each individual case. The following appears to me to be the best method. As the patient needs all

his powers of life to sustain him during
the continuance of the disease, general
blood letting, which is highly recommended
by some authorities at the outset, is
to be deprecated. Leeches or cupping
applied to the epigastrium relieve
pain temporarily in that region.
At first the bowels should be cleared
with a ten grain dose of calomel,
this will not only act as a laxative,
but allay gastric irritation. Purgatives
are injurious, because perfect rest
is of vital importance in the fever

is high & the skin hot & dry, crushed ice
should be applied to the forehead & body
sponged with cold water. Ice water
is very palatable & should be allowed
in small quantities. In typhoid
cases cold applications are not
well borne, but instead wine
or brandy in small quantities
must be used. The patient should
be allowed to change his position often.
While the fever lasts the use of
diaphoretics should be employed
& none is so suitable as the effervescing drugs

Early in the disease, when there is no gastric irritation, & there is reason to believe, that the stomach is loaded with undigested food an emetic of ipecacuanha should be given. Great restlessness, which generally occurs about the fifth day calls for the use of opium. Should the patient show signs of sinking tonics & stimulants, with a nutritious diet must be resorted to. A little beef tea is the best nourishment. During convalescence great attention should

be paid to the diet, for the least im-
prudence is apt to prove fatal.
The solid food must be eaten for
a considerable time, but the patient
must confine himself to broths, milk
& ice cream. Dr Stone deprecates
the use of calomel. When a hospital
student he was directed by [illegible] this
medicine to a yellow fever patient, but
such was his opposition to it, use, that
he substituted magnesia in its place,
not because because he had any
faith in its good effects, but because

he thought the former medicine would be injurious. Though Dr. Stone may not have been aware of it, yet the magnesia may have corrected the acid in the stomach, which was, doubtless, one of the objects his preceptor had in view when he prescribed calomel. It is recommended that the patient be placed in a bath at a temperature as high as he can well bear it; but the good effects derived from this mode of treatment are not sufficiently well established.

In this, as well as in other emergencies, another duty devolves upon the physician besides that of alleviating pain & restoring health. He should have another, a nobler aim the accomplishment of which will lend, not only to his best to his patients glorification on the world to come.

AN

Inaugural Dissertation

ON

Digestion.

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

W. Meyers Kine.

Of

Virginia.

Session of 1867-68.

Digestion

Digestion is that process by which the food is reduced to a form in which it can be absorbed from the intestinal canal by the bloodvessels and other absorbents.

The object of digestion is to convert the food into two fluids; the one a regenerating juice, destined to repair the waste of the system; the other, deprived of its nutritious properties, to be rejected from the body.

This function is comprised of a series of organic actions, differing according to

the particular organization of the animal.

In man these are eight in number; viz., 1st Prehension, 2d Mastication, 3d Insalivation, 4th Deglutition, 5th Action of Stomach, 6th Action of Small Intestines, 7th Action of Large Intestines, 8th Expulsion of Feces.

Vegetables do not possess this function. They derive their nutrition, mostly if not entirely, from a supply of inorganic substances, which they are capable of converting into nutritious matters, through a process they-

contain in their interior. These materials,

furthermore, are constantly furnished to vegetables under such a form as to be readily absorbed, and do not require any preliminary modification.

But with animals and man the case is different. They cannot subsist upon these inorganic substances alone; but require for their support materials that have been already organized, and have previously constituted some part of animal or vegetable matter; and is almost invariably solid or semi-solid when taken; and in

soluble in water. In animals there require to undergo a process of Digestion or Liquifaction before they can be absorbed. In all cases the general character of this process is the same. It consists, essentially, in the food being received into a canal, running through the body, from mouth to anus, called the Alimentary canal, where it comes in contact with several digestive fluids, which act upon it in such a way as to liquify and dissolve it. These fluids are se-

excited by the mucous membrane of the alimentary canal, and certain glandular organs situated in its neighborhood. Since the food always consists of a mixture of various substances having different physical and chemical properties, the several digestive fluids are also different from each other, each of them exerting a peculiar action, which is more or less confined to particular kinds of food.

As the food passes through the

alimentary canal, from above down-
wards, those parts, which become li-
quified are absorbed, and taken up
by the blood vessels; whence it goes
to support and nourish the general
system; while the remaining po-
tions, consisting of the indigestible
matter, together with the refuse of the
intestinal secretions, gradually ac-
quire a firmer consistence, owing to
the absorbtion of the fluids, and are
discharged from the intestine under
the form of feces.

In the various animals, the differences in their habits, in the constituents of their tissue, and in the character of their food, is accompanied with correspondent variations in the anatomy of the digestive apparatus and character of the secreted fluids. As a general thing the digestive apparatus of the herbivorous animals is more complicated than that of the carnivorous since in vegetable substances the nutritious matters are often inclosed in a solid and unmanageable

form. In those cases where the food consists mostly of herbage, as grass, leaves &c., the digestive matters bear only a small proportion to the entire quantity; and large masses of food must therefore be taken in order that the requisit amount of nutritious material may be extracted from it. In such cases the alimentary canal is large and long, and is divided into many compartments, in which different processes of disintegration, transformation and solution are carried on.

The simpliest conditions requisite for the accomplishment of these purposes are the following:- a fluid capable of performing the solution, and of affecting the requisit chemical changes; a fluid capable of separating the excrementitious matter by a process analagous to chemical precipitation; and a cavity or sack in which these operations may be performed; thus in the case of the little by dra the lining of the stomach corresponds so nearly to the external covering, as to be mutually con-

vertible, their actions differing only with their situation; and the fluid necessary to dissolve the food is secreted within the walls of the stomach, known as the "Gastric Juice".

As we ascend the animal scale, we find the digestive apparatus gradually increasing in complexity, but its essential character remains the same.

That of the herbivora is the most complicated, since they live upon foliage, which is very slowly digested and mingled with large quantities of

gestible matter; whereas the food of the carnivora is softer, and less incumbered with indigestible matter; so that the process of its solution requires a less extensive apparatus.

In the human species, the food is naturally of a mixed character, containing both animal and vegetable substances. But the digestive apparatus in man resembles almost exactly that of the carnivora; for the vegetable matter, which we take as food, is in the first place, artificially sepe-

rated to a great extent, from indi-
gestible impurities; and secondly,
they are so softened by the process of
cooking, as to become nearly or quite
as easily digested as animal substances

But still, the digestive apparatus of
man is complicated, for we find the
alimentary canal divided into nu-
merous cavities communicating with
each other, and all have their different
duties to perform. Thus we find the small
intestine divided into duodenum, jejun-
num and ileum, owing to the varying

structure of the mucous membrane. In-

to the duodenum open ducts of the

pancreatic and biliary canals. Again, we

have the large intestine divided into cae-

cum, colon and rectum; and seperated

from the small intestine by the ileo-

caecal valve. Every where the alimen-

tary canal is composed of a mu-

cous membrane with a muscular

coat with a layer of submucous tissue

between the two. The muscu-

lar is composed of a double layer,

longitudinal and transverse fibers

The mucous membrane presents different structures in different parts. The digestive secretions also vary in these different regions. The food meets with no less than five different fluids in its passage down the alimentary canal. First it meets with the saliva, 2d with the gastric juice in the stomach; 3d, with the bile; 4th, with the pancreatic fluid, and 5th with the intestinal juice.

The most important characteristic of the process of Digestion is different elements of the food are digested

in different parts of the alimentary canal by the various different digestive fluids.

The action exerted upon the food by the digestive fluids is not simply a chemical solution, it is a transformation by which the ingredients of the food are altered in character at the same time they undergo the necessary digestion. The action used in pronouncing this change is in every instance an organic matter, which enters as an ingredient into the digestive

fluid, and which, by coming in contact with the food, exerts upon it a catalytic action, and transforms its ingredients into other substances. It is this newly formed substance which is finally absorbed by the vessels, and mingled with the general circulation.

We have seen that Digestion is divided into a composed of several different acts, and now, that we propose to follow the food in its course through the alimentary canal; we will take up each of the functions separately

We will first take of Prehension as some physiologists consider it the first step to digestion.

Prehension of food is usually entirely voluntary, but in the infant and some of the lower animals, it seems instinctive as in the grasping of the nipple. This function precedes Mastication or the second act of Digestion.

Mastication or the act of chewing takes place in the mouth or first division of the alimentary canal. The food here undergoes two different operations simul

laneously viz. mastication and Insalivation.

Mastication is that process by which the food is reduced to minute sub-division; which is necessary to prepare the food for the subsequent action of the digestive fluids. This brings us to the third act of Digestion or Insalivation.

Insalivation is the mixture of the food with the saliva; [illegible] simultaneously with mastication.

The Saliva is not a simple secretion, but a mixture of [illegible] distinct fluids which differ from each other in the source

from which they are derived, and in their physical and chemical properties. These secretions, in the human subject, are 1st, that of the Parotid gland; 2d, that of the submaxillary; 3d, that of the sublingual, and 4th, that of the mucous follicles of the mouth.

The Parotid saliva differs from the mixed saliva of the mouth in containing some substance which masks the reaction of sulpho-cyanogen; fairly the Parotid saliva and that from the mouth be drawn at the same time from

the same person, the addition of per-
chloride of iron will produce a distinct
red color in the latter, while no such
change takes place in the former. The quan-
tity of saliva secreted in twenty four hours
has been estimated at 20, 164 grs. a rather
less than three pounds avoirdupois.
The most important question con-
nected with this subject, relates to the
function of the saliva in the digestive
process. A very remarkable property of
this fluid is, that it converts the insol-
uble starch into sugar

if mixed with it in equal quantities
and kept for a short time at the temper-
ature of 105°F. This phenomena is one
of catalysis, in which the starch is con-
verted into sugar. By this contact
with the organic substance contained in
the saliva, and not that it is in reality the
true function of the saliva in digestion
for it has been shown by different observers
that this property of the saliva is rather
an accidental than an essential one; because
the starch does not remain in the mouth
long enough to be altered by the saliva, and

passes immediately into the stomach

where it meets with the Gastric juice, which

prevents the change, that would else

otherwise have been effected by the saliva.

This action of the saliva though a curi-

ous and interesting one, has no signif-

icance as to its physiological function,

since it does not take place in the nat-

ural digestive process, and I shall, pres-

ently endeavor to show that there are

other means provided for the diges-

tion of starchy matter altogether inde-

pendent of the action of the saliva.

Thus we conclude that the first action of the Saliva is altogether a physical one. Its action is simply to moisten the food, and facilitate its mastication, as well as to lubricate the triturated mass so, and assist their passage down the oesophagus. We have come to the 2nd act of Digestion, Deglutition or Swallowing.

When the aliment has been sufficiently triturated, it is conveyed into the Stomach by the act of Deglutition. This act involves a great many delicate movements into the minute

discription of which we shall not here enter. It is one of those most purely reflex in its character, and is capable of being performed but not controlled by a voluntary effort. The muscular movements concerned in deglutition, are excited by nerves which proceed from the spinal cord and not from the brain.

The food is thence carried into the stomach where it meets with the gastric juice, and stomach digestion; or the fifth act of Digestion.

That part of Digestion which takes

place in the stomach has been regard-
ed, nearly; if not quite, the most im-
portant part of the whole process. Here
the food meets with the action of the
gastric juice, which is secreted within
the walls of the stomach. This fluid is
not present in the empty stomach; ex-
cept to a very limited extent only enough
to moisten the gastric mucous mem-
brane, and give it an acid reaction. It
has been determined that the acid re-
action of the gastric fluid is due to the
lactic acid, though others have been

found present.

The free acid is an extremely important ingredient of the gastric fluid, and is really essential to its physical properties; for the gastric juice will not exert its solvent power on the food, after it has been neutralized by an alkali, or an alkaline carbonate. The next most important ingredient of the gastric fluid, is its organic matter or ferment, which has received the name of Pepsine. The gastric fluid will not undergo putrifaction, which has been proven

by keeping it in a common glass stop-
ped bottle for an indefinite length of
time, without developing any putrid
or acid odour. The gastric fluid is not a
universal solvent of all alimentary
matters, but affects only a single class
of the proximate principles, viz., the
albuminoid or organic substances.
The action of the gastric fluid upon
the food, is a catalytic transformation
involving in the albuminoid substances
by contact with the organic matter of
the digestive fluid. This organic matter

ter acts in a similar manner to that of catalytic bodies or ferments generally. For its active operation it requires to be dissolved in an acidulated fluid. By its operation, the albuminoid matters of the food are all converted into a new substance, termed; Albuminose.

The peculiarities of albuminose are 1st its interference with the operation of Trommer's test for grape sugar, and 2d with the mutual reaction of starch and iodine. It is now known that these difficulties can be obviated but I do not

deem it necessary to explain how it can be done at present.

Another important action that takes place in the stomach, is its peristaltic movement; due to the action of the transverse and longitudinal muscular fibres, which we have already noticed, as composing the walls of that organ. We know this movement must assist very much in the digestion of the food, and that it is the want of this continued movement that makes artificial digestion so slow and difficult

in the common alimentary tube. The digestion in the human species is more rapid than that of any other animal, owing in the first place, to the preparation by the process of cooking, before it is taken as food. It varies from one hour to five and a half. The quantity of gastric juice secreted in a given time is very large, and would seem incredulous, if we did not know it is absorbed, as soon as it has answered its many purposes. It has been shown by the most recent researches that it takes about thirteen pints of a digestive one

process of digestion. We know that the secretion of the gastric juice is much influenced by the nervous system. Thus every one is aware how any mental disturbance will take away the appetite, and interfere with digestion.

In order that digestion may go on properly in the stomach, it is essential that the food be taken only when the secretion demands it; that it should be thoroughly masticated at the commencement; and, finally, that both mind and body should be free from

any unusual or disagreeable excitement.

The next step in the Digestion of the food, is the action of the Small Intestines, or the sixth act of Digestion.

From the stomach, those portions of the food, that have not been sufficiently digested, pass into the small intestines. We have already shown that it is only the albuminous matters that have been digested in the stomach. Therefore the other ingredients must pass out of the stomach undigested into the small intestines. We have

shown that the gastric juice does not digest sugar; therefore, it must be absorbed as cane sugar, or pass into the duodenum unchanged; where the intestinal fluids at once convert it into glucose. It is equally certain that starchy matters are not digested in the stomach; but also, pass into the small intestine unchanged; where they meet with the mixed intestinal fluids, which act at once upon them, and convert them into sugar. Thus we see that starch is first converted

into sugar, and then the sugar is changed into chyle, and absorbed in the intestines. Thus we see that both the sugar and starch are both absorbed from the small intestines, as chyle; therefore, we conclude that the inherent principles must be the acting agents in the digestion of both starch and sugar; and we can not see how, because we know the fluid taken from the stomach consists of a mixture of three different secretions; viz, the bile, the pancreatic juice, and the mucous

juice proper, and I think I should attempt to show the action of each of these fluids separately. The bile may be left out of the question; since it does not, when in a pure state exert any digestive action on starch. The pancreatic juice has the property of converting starch into sugar; but is not known to be always present in the duodenum. The true intestinal juice is know to be the product of two glandular organs, seated in the substance of or beneath the mucous membrane; the follicles of Lieberkuhn

and the glands of Brunner. It has the property of rapidly converting starch into sugar, at the temperature of the living body.

The only remaining ingredients of the food that require digestion are the oily matters. Very soon after their entrance into the small intestines, the oily portions of the food loose their characteristic appearance, and is converted into a white opaque substance, which is gradually absorbed. This substance is termed Chyle, and is always found in

the small intestine during the digestion of fat.

Fresh Pancreatic juice only requires to be mixed freely with oily substances to reduce them to a state of complete emulsion. It has been shown by experiments that the action of the saliva, gastric juice or bile, in these matters, is entirely insignificant in comparison with the prompt and energetic action of the Pancreatic juice.

The peculiarity of the pancreatic juice is its action on oily matters. In the state of emulsion, the fat is capable of

being absorbed, and its digestion may be said to be accomplished.

Although the separate action of these digestive fluids commence at different points of the alimentary canal; they afterwards go on simultaneously in the small intestine; and the changes which take place here, constitute the process of Intestinal Digestion, which forms one of the most complicated and important parts of the whole Digestive function.

In this way the digestion goes on in

a continuous manner from the stom-
ach throughout the entire length of the
small intestine, and results in the for-
mation of three different substances:
albuminose, oily emulsion and glucose.
These substances are then taken up in-
to the circulation.

We next comes to the action of the
Large Intestines.

We have seen, that throughout
the small intestines, the secretions
are mainly intended to act upon
the food, and, we have it for absorb-

tion. But below the ileo-caecal valve the contents of the alimentary canal, exhibit a very different change; are distinct in their color, odor and consistency. This portion of the intestinal contents, termed "Feces", are composed of the undigested remains of the food, and the animal substances discharged into the intestine by excretion. The action of the large intestines are mainly confined to the secretion, and discharge of certain excrementitious substances.

Thus we have come to the last act of Digestion: the expulsion of the feces. The act of defecation is, purely a reflex one, due to the impression made upon the mucous membrane of the rectum, which is conveyed to the spinal cord, and by a reflex motor impulse, the muscles of defecation, the diaphragm & abdominal muscles, are thrown into action and the resistance of the sphincter ani is over come, and the feces are expelled.

Thus we conclude that the object of Digestion is three fold: the reduction

of the food to a fluid form, the separation of that potion which can be absorbed from that which can not, and certain changes which are undergone by the former to prepare it for farther use. These comprehends the whole process of digestion from prehension to the expulsion of the feces.

From a retrospective glance over the history of our science, we are forced to acknowledge that there is perhaps no subject in practical medicine where observation and research has been more inaus-

trions in the accumulation of ma-
terials, than in this.

Has the mind then made no real
advancement in relation to the
process of Digestion - are we no near
er the correct and rational in our
views concerning this important
subject than were our fore fathers?
Has genius always wandered in
idle quest, and brought back no
substantial trophies from the re-
gions of physiological specula-
tions on this point? Far from it

like the assymptotes of the parabola, the human mind is continually verging towards the truth. Few has probably never been a theory or doctrine promulgated on this subject, which did not bring fuller in view some of the relations of the phenomena it presumed to elucidate.

The mass of solid material which has thus been gradually accumulated, has now, in a great measure displaced vague and hypothetical foundations upon which former

doctrines, in relation to this, were constructed.

Hypothesis is no longer tolerated in science. Physiology can not acknowledge her as a legitimate servant. The cells of her empire has gone by, and the genius of rational induction is now the only power under whose direction the victory of science presses forward and is conquest in the field of knowledge.

AN

Inaugural Dissertation

ON

Turpentine

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

John Baxter Williams Jr.

Of

[illegible]

Session of [illegible]

"Turpentine"!

In the consideration of this subject it is not to be expected that I shall expound any new things or bring to light any fact hitherto unknown to the profession, for, if such was my intention I would resort to some thing other than to this time honored remedial agent! Turpentine in its most comprehensive sence, we find, has been applied to a great variety of oleo resinous juices obtained from different species of the Coniferous order of plants & trees - By distillation they yield an Essential oil, which in odour is often characteristically at variance, yet their Chemical Constitution is the same - In their predisposition for locality they exhibit a wide difference,

while one are found in Siberia and on the Snow clad summits of the Alps, others are found abundantly in the Tropics - In the United States we have them from Maine to Florida on the Atlantic coast. It is not my design however to dwell on all the varieties of Turpentine for it is almost impossible to do justice in the limited space which I allot here to the one all important variety I have selected for especial consideration. Dropping all others I would call your attention to the White or American Turpentine. as it is known in foreign Ports, which is now almost exclusively procured from the Pinus Palustris or Long-leaf Pine a native of North Carolina and from which

as her principal product of export, she realized annual Millions of Dollars annually, anterior to the late Civil War.

The tree, from which this Turpentine is procured, is an ever green, my tall of the growing to the hight of 70 to 120 feet and is from 3 to 4 feet in diameter at the base and often only slightly diminished in size for 40 or 50 feet. It delights especially in low, wet and sandy soils. In the procuring of this oleo resinous juice, a hollow is cut in the tree near the ground and the bark is removed for the space of 12 inches or as many feet above it. The Turpentine drips into these hollows, most abundantly during the Summer season.

after which it is collected into casks, when it is ready for market. At first it is in a liquid state, but afterwards becomes solid on exposure to air. It contains a volatile oil. It melts on the application of heat and will burn in the open air with a copious deposit of Carbon. Turpentine will not mix with water but is freely soluble in Ether and Alcohol. Color is yellowish; has a strong very disagreeable, peculiar, aromatic odour and taste. It yields by distillation an Essential oil, which is vulgarly called "Spirits of Turpentine". The residue is Resin. The fresh Turpentine contains about 18 or 20 per cent of the oil. The pure oil is perfectly clear and is neutral to

test paper. On exposure to atmosphere it oxydizes, resulting from the formation of Resin - Physiological effects.
Its vapor destroys plants and acts as a poison on the inferior animals - In its action on the living system it proves Stimulant, Diaphoretic, Diuretic and Astringent, and in larger doses Cathartic and Anthelmintic; in fact almost any and every effect can be produced by its proper administration, from the high Cerebral disorder to its mere styptic properties; and thus we claim for it a most valuable Therapeutic agency in almost every form of Disease -
Being taken into the stomach it is converted into Pinic & Sylvic acid and as such

is absorbed, though some of it is thrown off unchanged through the Kidneys and Respiratory Apparatus, for which it has an especial tendency.
It creates a feeling of warmth in the Stomach, becomes absorbed and circulating in the blood vessels, affects the capillaries by constriction. It is discharged from the system by all the Excretions, though principally, as I have before said, by the Kidneys and lungs.
By its constringent effect on the capillary system of the mucous membrane, it often proves beneficial, by checking discharges from their ports. Contrary from what might be supposed, "a priori", it often tells as an Emmenagogue properties.

The dose ordinarily is from 10 drops to 31, though often more may be given without producing any deleterious effects; it is not safe practice however to give more than drachm doses generally. and two or even less may sometimes be attended with more or less ill effects, owing to some idiosyncrasy or morbid condition - I have experimented on my own person, taken in 2 drachm doses on an empty stomach, giddiness almost immediately followed its administration, which was succeeded by inebriation lasting for several hours - This was attended with no other unpleasant symptom - The exaltation was not, I imagine, such as wine bibbers experience, and the pleasantness of it

has certainly more tempted me since to resort to its use in order to drown sorrow or drive away a fit of the "Blue Devils"; on the contrary I have a horror even of its odour, which often produces nausea the most distressing - On this point Dr. Copland relates a case occurring in his own person. he says the disorder of the cerebral functions in this case is diminished circulation of blood in the brain; while the gastric heat to be ascribed to increased vascular activity in the abdominal region - I am disposed to think that very large doses, as from 1 to 2z are not so apt to be attended with bad effects as moderately large doses, as from 1 to 2z, and this may, and is probably due to the cathartic effect of often produced

by these enormous doses. Oil of Turpentine in its action is often known to produce effects, the nature of which is, as mean proportion between a stimulant and a sedative, and on this account the oil may be administered very advantageously when we are in doubt (as we often necessarily are) as to whether our Patient needs a stimulus or a sedative. It is often in such cases attended with the most happy results. Turpentine is a highly diffusible agent, often being detected in the urine a few minutes after its administration by the mouth. The urine has the characteristic odour of the Turpentine. I will not mention one of the most prominent affections in which

the oil of Turpentine is used with more or less benefit. As an anthelmintic the oil is particularly useful in Children - I have seen 6 drops given 3 times during the day produce the desired effect in a child 8 years old - It is best given in combination with sugar and sweet spirits of Nitre - The oil is given for Tape worm (Taenia Solium) in large doses from 1 to 2 ℥ followed by an active cathartic, or it may be given at first with Castor oil. It is said to be one most reliable method of getting rid of these Entozoa - From what has been said on the Physiological effects of Turpentine it is to be inferred that it may be used with great advantage

afflictions in Gonorrhoea, Leucorrhoea,
Diarrhoea, Dysentery, Gleet &c;
In these affections of the Mucous Membrane
the "methodus medendi" may be accounted
for in two ways, first, it gives tone to
the Vessels which secrete Mucus, and also
induces a new kind of Inflammation,
which takes the place of the abnormal.
The oil should not, however, be used or
only cautiously, when the parts are in
a highly inflammatory state - In Puerperal
Typhoid and other forms of Fever, the oil
is known to be an exceedingly valuable
agent - At the commencement of the present
century it was extolled as a Specific in
Puerperal Fever; and though this theory has
long since exploded, yet it is still made

use of, and effectually too, in relieving tympanitic condition; for which purpose it is best administered in form of Enema - Dr. Wood recommends it highly in Typhoid fever, when there is pain in and distension of the bowels, when the tongue is red and also when diarrhoea supervenes - Dose, from 5 to 20 drops every two hours - the dose must be gradually decreased as the Patient improves. Our Experienced and distinguished Professor of Practice, speaks in the highest terms of the "Turpentine Stupe" applied over the hypogastric region in tympanites of Typhoid fever. Applied externally and given internally, it is often of signal benefit in chronic adynamic forms of Rheumatism - In the bites & stings of Serpents, insects &c. taken

internally and used externally to the wound.
the oil proves almost infallible -!
The oil may be employed with good
effect to External wounds attended with
hemorrhage - it checks the flow of blood
and relieves the soreness which might
result from the lesion inflicted.
In form of liniment the oil is applied
to sprains, burns, bruises, scalds &c, and
thus acts beneficially by restoring the
parts gradually to their normal condition.
It has also been used in dry gangrene.
In Chronic sore throat, I myself have
experienced almost instant relief by
a gargle of the oil and by external application over
the parts affected. It has been reported,
and truthfully I doubt not, that the oil

of Turpentine has relieved suppression of urine when all other remedial agents have failed - it does sometimes in over doses produce Stangury, and in this way its effects may be explained on the principle of the old adage, "Similia similibus curantur." In Dropsies attended with great debility, the oil may be of benefit, both from its alteration and diuretic effects. In Neuralgia its employment is often attended with marked success - I have seen it relieve toothache when almost every thing else had been tried in vain - As an Antispasmodic, the oil has been employed with apparent good resulting therefrom. There are many other Diseases in which the

oil of Turpentine has been extolled as a remedy - though I will not enumerate them here, as they are of minor importance and as the "Modus Operandi" has been already sufficiently dwelled on, in detail, in those above mentioned.

By a tedious process, too long to be entered into here, we have the production of what is termed, Creasote or "Flesh preserver" of which the odour alone is sufficiently Characteristic. When pure, Creasote is colorless. It coagulates albumen, and may thus be used as an efficient Caustic. Of course it is stronger than the oil of Turpentine, and is to be given in smaller doses, with the same good results. Creasote is a powerful antiseptic, as may be inferred from it etymology -

Creasote is often given with good effects in colic and gastrodynia. When largely diluted it is often applied with benefit to Chronic ulcers. Creasote has, however, gained a higher reputation in the relief of sick Stomach than for almost any other purpose - it certainly does often in a most remarkable degree, possess the power of arresting Vomiting. The dose of Creasote to commence with is 1 or 2 drops to be given with some Mucilage. There is an ointment of Creasote often of benefit applied in Skin diseases. Tar is the production by slow combustion of the pine wood - atmosphere being partially excluded. Tar and Pitch in different forms are often applied beneficially to Excoriated surfaces -

AN

Inaugural Dissertation

ON

Pleuritis or Pleurisy

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

L. C. Warren,

of

Goldsboro, York Co. Penna

Session of 1867-68

Pleuritis or acute Pleurisy

Are terms applied to inflammation of the pleura - the serous membrane investing the lungs and lining the thoracic cavity. The disease may run an acute or chronic course and when one side is only affected which is most frequent form of attack. it is termed unilateral, though sometimes we have double or bilateral pleurisy. Uncomplicated cases very rarely prove fatal.

Symptoms

This disorder is generally introduced with chilliness or slight rigors, succeeded by fever, and an acute lancinating pain

in the side, called a "stitch" which pain is generally seated below the infra mammary or lower axillary region. It is aggravated by the expansion of the lung in inspiration, & pressure on the intercostal spaces or lying on the affected side. There is also present a short harsh cough with more or less dyspnoea. The skin remains hot & dry - the cheeks flushed. The pulse is hard & frequent & respiration is often much increased in frequency, attended with anxiety & restlessness. The urine is rather scanty and high colored. The pain & fever cease after effusion has occured, but dyspnoea may then be increased and it is often found more comfortable to lie on the diseased side. So as to allow of free breathing by the other lung.

Physical Signs

These are often of the highest importance in forming a correct diagnosis. The earliest sign of pleurisy occurring during the first stage, when the pulmonary and costal pleurae are inflamed and slightly roughened by lymph, is a rubbing sound heard during the movements of inspiration, arising from the friction of the roughened surfaces against each other, hence known in some medical books as a friction sound, and has been thought by some medical writers to be developed even before the commencement of exudation or the pouring out of lymph, by the rubbing together of the pleuritic surfaces rendered dry by the commencing

inflammation, or unequal by the enlarged vessels. The grating movement which gives rise to the sound may be felt by placing the hand flatly to the side, and is often perceptible to the patient himself, these sensations are found to disappear whenever rening of the opposite surfaces take place or as soon as they are suspended by the liquid effusion; and by the aid of percussion we are enabled to discover a diminution of the healthy resonance, in the comparison of the opposite sides. The dulness will be found to increase or augment with the increase of the effusion until at length it amounts to perfect flatness. The effused fluid is found upon percussion to be in the most dependent part of the thoracic cavities

increases with the amount effused.
This may vary according to the attitude of the patient, as the fluid has a tendency to gravitate. Yet there are exceptions to this rule, as there may have adhesions formed by which the liquid may be confined to different localities - but when the whole cavity is filled will be found universal dulness on percussion - The apex of the lung is generally the last to lose its resonance. When practicing percussion on the left side of the chest in pleuritic effusion, allowance must be made for the resonance of the stomach which, when that organ is full of air, often modifies the sounds a considerable distance up the chest —

In some instances when there is a small portion of the lung in contact with the parietes of the thorax, while all the rest is seperated from them by the effusion, percussion then may develope tympanitic sound, which might be taken or mistaken as a sign of pneumothorax, a cavity in the pleura containing air, but the inferior portion of the lung may be entirely compressed by the pleuritic effusion and the superior portion reduced in volume and the percussion sound at the superior part of the thorax may be distinctly tympanitic- This phenomena having been noticed occasionally by some authorities ascribe it to the increased conducting power of the compressed lung, the vibratory movements of which are

received from the trachea & bronchial tubes and through these reach the ear applied to the chest.

The respiratory murmur is gradually diminished or becomes enfeebled as the fluid is effused & entirely ceases in those cases in which the fluid is abundant, although there may be a portion of the lung in contact with the chest the healthy murmur of which is often superseded by a bronchial respiration-dependent upon the compression of the air cells which more readily convey the vibrations of the bronchia to the surface - This sound is heard usually greatest at the root of the lung and diminishes as it recede from that part. Though in some cases, it may extend more or less over the whole

side of the chest. In some medical books are noticed cavernous and amphoric respiration and amphoric resonance. But if the effusion is very abundant these sounds are quite lost or they may be feebly heard between the scapula & sometimes not even there.

If we auscult the opposite side of the chest the respiration will be found to be louder than in usual health and often becomes puerile known as puerile respiration.

The voice furnishes a valuable sign. When there has been a moderate effusion taken place and a thin layer of liquid interposed between the lung & side of the chest, it will (the voice) vibrate the liquid which will aid to modify & render sharp

and tremulous the voice very much resembling the bleating of a goat or lamb. This modification of the voice is denominated ægophany & is regarded as a characteristic sign of effusion into the pleura. The modified sound is best heard between the third and sixth ribs in the interscapular region & between the scapula and the mammae.

When the effusion is considerable from the forming of the disease or becomes so during the progress of the affection, the ægophony disappears & the respiration is no longer heard, unless there are some old adhesions retain some part of the lung near the ribs & prevent it from being forced back by the effusion. When the effusion is great in the chest

the distention becomes perceptible to the eye and if it continue may finally displace the heart, liver &c.

The course of acute pleurisy is variable and uncertain. There is reason to believe that resolution might be effected at the early stage of the disease by appropriate treatment.

But there will be cases met with where expulsion of coagulable lymph has taken place and then a longer period will be necessary for the cure. In a third set of cases the signs of liquid effusion will be found or perceived, sometimes on the first day & sometimes not until the second, third or even the fourth day when the severe pain abates. In these cases the friction sound if ever will be at all

is soon followed by feebleness and gradual cessation of the respiratory murmur by bronchial respiration - oegophony and dulness on percussion At this period, should the progress of the disease be arrested, the general symptoms abate & the abnormal sounds gradually disappear and healthy sounds are found to return: sometimes a friction sound is heard for a short period after absorption has taken place and before a union between the opposite surfaces has been effected.

The disease is usually cured in five to seven days - But instead of the favorable turn of the disease we find effusion to continue increasing oegophony disappears - the bronchial respiration becomes more & more distant until this entirely ceases or is but faintly heard: Then we have dulness

or flatness upon percussion which prevails to a greater or less extent over the thorax, mostly sanjoining with the position of the patient. The pain has nearly ceased and the fever moderated, but the dyspnoea is often great, and the patient is unable to lie on the sound side - In this form the disease may continue for a variable time and when recovery takes place it will vary from 3 weeks to as many months & the complaint will often assume a chronic course. Although if the disease terminate favorably, the fever, cough and dyspnoea gradually disappear, the dulness on percussion diminishes, egophony sometimes returns in the progress of absorption the respiratory sound or murmur is again perceptible to the ear - The friction sound may also be heard

for the first two days or perhaps 3 days, and health is at length reestablished - The favorable termination is sometimes attended or preceded with critical affections, such as Urinary sediment copious perspiration, diarrhoea, rheumatic pains or Eruptive affections. After convalescence the patient not-unfrequently complains of a pain or stitch in the side, upon taking a long inspiration with some frequency of pulse which may remain for sometime. In one form of this disease, known as latent pleurisy, there may be neither cough nor dyspnoea and yet effusion go on until one half of the chest becomes filled with fluid as shown by the physical signs.

When acute pleurisy is about to terminate fatally - which very seldom occurs in well treated

cases of an uncomplicated form, the effusion increases, the breathing becomes greatly oppressed, the countenance assumes a cadaverous and anxious expression - the pulse much accelerated, small, & feeble and finally extinct, due to the imperfect performance of the respiratory function and death follows with gradual failure of the powers of the system. In double or bilateral pleurisy according to some high authorities a fatal issue may result, from the mere influence of the inflamed membrane without there being any discoverable amount of effused liquid.

Complications, acute pleurisy may be complicated with pneumonia, tubercular deposit Bronchitis, pericarditis and Pneumothorax or peritonitis

Anatomical characters

The first observable effect or deviation from the healthy side is redness of the membrane which depends on the injection of the subserous blood vessels, rather than in the serous tissue. This is followed in the majority of cases by increased secretion, the product may be either concrete or fluid incensistence with the quantity, consistence & color of which varies much. The membranes being in a state of inflammation, pours out a serous fluid which after absorption of the thinner part or other exudation becomes concrete and forms a false membrane, which adheres to the surface of the pleura and in these cases will be found with little or no liquid.

The two forms of exudation as a general thing, are associated, if not at the onset of the disease, takes place very soon afterward. At first the coating is very much attenuated and soft, & over the larger portion of the lung is scarcely perceptible, becoming obvious only by removing it from the surface. Afterwards it becomes thickened & has a grayish or brilliant hue, remaining still soft in consistence and is easily separated. At a somewhat later stage it acquires a firmer consistence and more adherent, the surface of which is usually rough, owing to the inequality of the deposition and likely from the friction of the opposite membrane. Though in a few cases, it is somewhat smooth. Its extent corresponds with the inflammatory process and

Sometimes entirely covers the whole pleura, though not always equally. It is fibrous in its nature and is organizable, exhibiting red points, which ramify here and there & finally forms a vascular net-work with the pleura. If there is liquid effusion found it is caused occasionally by filamentous bands of a plastic nature, generally finding its way between the costal & pulmonic pleura. If the quantity of effused liquid be great the cavity of the pleura is filled - the chest much enlarged & the adjacent viscera more or less displaced - this is most frequent in protracted or chronic cases. In acute pleurisy the distention is not very great. The liquid or effusion in acute pleurisy is usually a yellowish limpid or slightly

opaque serum, with flocculous matter floating in it. In some instances it is more turbid, sometimes sero-purulent and occasionally pus & blood with or without coagula and in ordinary cases attended with but little fever and will usually be found free in the pleural cavity and to move as the patient changes his position; but is sometimes confined by old adhesions of the pleura.

The compression of the lung depends upon the quantity of the effusion, & when this is great; the lung is scarcely larger than the hand. This compression, takes place more frequently in chronic than acute pleurisy. Though the air cells may be compressed in recent cases, no adhesions will be found, and consequently

may be readily enlarged by the inspiratory effort.

During these changes the serous membrane is not thickened or materially softened, and if it occasionally appears swollen, this is due to the injection or infiltration of the cellular tissue or to the superposition of the false membrane. It sometimes happens that when a portion of the pleura is coated with concrete exudation, that other adjacent parts are similarly affected. A portion of the lung is sometimes gangrenous, in which case, the fluid of the cavity as well as the false membrane becomes extremely offensive. Sometimes the pleurisy has been caused by the bursting of a tuberculous or gangrenous cavity of the lung communicating with the bronchia, in the cavity of the pleura which thus contains air

along with the purulent fluid, hence we may have pneumo-thorax -

Generally in those cases which terminate favorably, the effused fluid or liquid is gradually absorbed, and if no false membrane has been formed, the parts are restored without change to their original condition, But this is perhaps a result of not frequent occurence: more commonly the opposite surfaces unite, owing to the adhesions and organization of the coagulable lymph with which they are coated. The whole of the inflamed surfaces do not unite, at the same period but those parts first which first come in contact, and afterwards other parts successively, as the fluid undergoes absorption. Sometimes the fluid or portions of it, are retained here

and there in the meshes of the false membrane. The changes do not terminate with the reapplation and union of the pleural surfaces; the intervening organized lymph undergoes a vital process by which its superfluous parts are removed, and finally the connecting medium is reduced to a delicate tissue of cellular membrane. In some cases the whole cavity of the pleura is obliterated, in which case, the patient cannot be again attacked with pleurisy of the same side. In other instances the adhesion is only partial; and sometimes filaments of the cellular membrane run from the pleura of the costal region to that of the lungs, having been formed perhaps during the plastic state of the exuded lymph, by the

movement of the lung upon the parietes of the thoray during the respiratory movements. With the absorption of the liquid, the lung again expands, but if compression has continued long, the air cells do not at first completely yield to the expanding force, and the lung does not immediately recover its original dimension.

This very rarely happens to any considerable extent in acute pleurisy. Occasionally the lesions resulting from inflammation are confined to the interlobular and diaphragmatic pleura.

Causes

The most frequent cause of pleurisy is exposure of the body to cold especially

when previously heated or perspiring
It is said that cold drinks under similar
circumstances will produce the disease, other
causes such as mechanical injuries - the transfer
of irritations from without - or the sudden checking
of habitual discharges, and the influence of various
diseases - The most frequent of these are tubercles -
In cancer of the female breast pleurisy occurs
secondarily, either from the irritation of the pleura
by a deposit of cancer beneath it, or in some
instances by the sub-inflammatory action in the
confines of the diseased gland, extending through
the intervening tissues of the pleura -

During the progress of continued fever of
Bright's disease, an attack may set in. Abscesses
in the parenchyma or mortification upon the

surface of the lung, sometimes give rise to pleurisy, the former by opening into its cavity, the latter by the contact of its putrescent products.

The disease is more frequent in men than women, owing to their being more exposed to its ordinary causes. It is common to all ages - the robust and vigorous and persons of sanguineous temperament are said to be most liable to it, - and its occurrence mostly confined to the winter months and Spring season.

Diagnosis

The only diseases with which pleurisy is most liable to be confounded are pleurodynia, rheumatic affection of the intercostal muscles & pericarditis and pneumonia. In pleurodynia the physical signs which have been noticed as

characteristic of pleurisy are wanted with the exception of diminished respiratory murmur and other results of the want of free expansion of the thorax in breathing. There is also usually absence of febrile excitement & cough, and the pain is of a more shifting character than in pleurisy and is frequently felt in the neighboring parts. In distinguishing pleurisy from pneumonia we have the pain in the former sharp and severe and generally concentrated in one spot. In the latter disease, it is moderate and dull, when the pneumonia is uncomplicated, but as this is commonly associated with inflammation of the pleura which invests the inflamed portion of the lung, this symptom is not to be relied upon. But the character of the expectoration is of more

importance, being viscid and rusty in pneumonia:
and in pleurisy it is mucous and transparent or
whitish or sometimes streaked with blood. In
pleuritis the crepitant rale of pulmonary
inflammation is wanting, while the friction
sound and egophony is peculiar to the former,
although bronchial respiration may exist in
both forms, but, it is more extensive and heard
over broader regions of the thorax, in pneumonia,
than in pleurisy with effusion. In the latter
affection, where the lung is much compressed
respiration is often scarcely, if at all heard and
vocal resonance is wanting, while in pneumonia
with the highest degree of dullness in percussion,
bronchial respiration is usually distinct, and
the vocal resonance much greater than

in health amounting often to bronchophony. Percussion yields no distinctive sound in the earliest stage, but the dulness is noticed earlier in pleurisy, and the flatness of the advanced stage is more complete. However in pleurisy, the flatness often changes, according to the position in which the patient is placed, which is not the case in pneumonia. The whole sternal region may be flat in pleuritic effusion, only half of it in hepatization. The hand placed over the seat of copious pleuritic effusion feels no vocal vibration, but if placed over the chest in pneumonia the vocal vibration is more striking than in health. The distention and displacement of the organs which occurs in pleuritic effusion is strikingly contrast-

in pneumonia. The diagnosis in partial pleurisy especially the interlobular and mediastinal, is very uncertain and at best conjectural. When the disease is unattended with pain and cough, it is very apt to be overlooked. This most frequently occurs when the pleurisy comes on in the course or towards the termination of other diseases. In those cases, it is a very good mode or rule to explore the chest frequently and carefully to ascertain whether pleurisy may exist or not. In pericarditis we have absence of egophony - frictions sounds are simultaneous with the motions of the heart and not with the movements of respiration - dulness confined to the region of the heart - it is not changed with postures of the patient.

Prognosis

Simple unilateral pleurisy always terminates favorably if properly treated in the earlier stages. When the effusion is copious or has taken place the cure is more uncertain, but may be effected in uncomplicated cases. It is generally by association with other diseases, that pleurisy acquires obstinancy, and becomes very dangerous. Thus when it occurs in the course of febrile affections or persons of a debilitated system caused by some other complaint it increases the danger, and sometimes makes a fatal issue. It has been considered by some authors that the most frequent causes of its obstinancy & recurrence is the existence of tubercles in the lungs. Hence the rational

apprehension of latent phthisis. Coexisting organic disease of the heart, liver or kidneys viz Bright's disease adds to the danger of the complaint= It is to be regarded more serious in the aged than in the young and vigorous, because in the latter there is a tendency to the exudation of fibrin and to consequent adhesion of the pleura besides their greater ability to withstand the disease, while in the former the disposition is to effusion of serum and formation of pus, both of which interfere with the curative process. Pus in the pleural cavity is considered very hazardous-

Purulent expectoration, emaciation and hectic fever are very unfavorable signs in this affection. Bilateral or double pleurisy may be

always regarded as a very serious affection.

Treatment

The treatment of acute pleurisy is general and local. When patient is of a robust and vigorous habit and the inflammation is of a high grade, free venesection must be employed. The amount to be taken from the arm of a robust patient where the pain is great, is from 12 to twenty-four ounces. The patient should always be placed in the sitting posture, if he bears it without depression of pulse, when blood is taken from the arm, and bled until he experiences a degree of faintness or sickness of the stomach or a decided impression is made in the reduction of the volume or fullness of the pulse. The disease is thus not

unfrequently arrested at the outset or rendered so mild as to be easily controlled. After free venesection, if the pain should not abate or should it return violently after having abated, with full and active pulse, it is advisable to deplete still further by venesection, at the same time, in regard to abstraction of blood, much discrimination may be requisite in regard to other existing disease, particularly of the heart as well as in the advanced stage of the disease.

After bleeding the bowels should be unc evacuated with an appropriate cathartic - 10 to 15 grs calomel may be given, followed in from 3 to 5 hours with from 3ss to 3j of Sulphate of magnesia or an infusion of Senna & Salts: or, as a cathartic a few compound

cathartic pills may be very appropriate and subsequently during the continuance of the compliant, the bowels should not be permitted to constipate. If after bleeding and physicking, the febrile symptoms do not abate calomel with Pulv. Ipecac. one or two grains of the former with about a half of a grain of the latter or from the 1/8 to 1/4 of Tart. ant. should be given every 2, 3, or 4 hours and to which there may be added occasionally 1 gr. Pulv. Opii if much pain or restlessness exists. If, after the pulse is reduced, the pain should prove obstinate and the febrile symptoms still continue, the application of cups or leeches should be freely applied over the affected part and followed by a large emollient poultice. After this in a few or some, repeat the cupping or leeching or the

the application of a large blister 8 in by 10 in.
over the affected part will be proper, making sure
to blister ere removing it.

If there be symptoms of effusion - the calomel
powders or blue mass should be continued until
the gums are slightly touched. If these measures
fail to remove the effusion, calomel with squill,
and digitalis may be added in case of too
much frequency of pulse and not much
prostration. A repetition of blisters over or near
the seat of the effusion may avail much in cases
of much obstinancy together with the administration
of Potassae nitras, calomel and digitalis or
Veratrium viride where much acceleration of pulse
continues: or, the use of Iodide of Potassium and
colchicum or muriate of ammonia may be

of much service in promoting the removal of the effusion through the different emunctories, by absorption and elimination through the kidneys skin or bowels – In treating pleurisy it will be of much importance from the onset of the attack to distinguish the sthenic from the asthenic condition of the system in the latter the abstraction of blood will require much caution and cupsor leeches will usually be adequate in this, to the lancet – in the sthenic condition of the system but blistering may be more properly resorted to, and the mercurial practice earlier begun

Instances will be met with in which there will be much derangement of the biliary organs when the judicious use of mercurial medicines and

called for. In other instances in the course of the attack intermitting symptoms may become developed in which case the antiperiodic medicines will be of avail- Instances have been met with, where on the fifth or sixth day great difficulty of breathing and suppressed expectoration supervened for which the application of blisters to the inside of the thighs act favorably.

If we find this disease associated with tubercles, much caution will be required in the abstraction of blood as well as the use of mercurial medicines, lest we thereby impoverish the blood which is said to favor and accelerate the development of tubercles in those of a tuberculous diathesis, the avoidance of which is of paramount importance

In many instances we will find catarrhal symptoms or bronchial irritation to accompany the attack of pleurisy, when seneka may be useful or the Comp. Syr. Scillae in doses of from ʒss to ʒii every 2, 3, or 4 hours, alternated with appropriate doses of Pil. Hyd. or Calomel — other expectorants may be called for, after the violent & more inflammatory symptoms are abated, such as Gum ammoniacum with Pulv. ipecac. or the Syr. Ipecac. with seneka these may be given with a view to promote expectoration & should chough trouble or annoy the patient much an occasional dose of Pulv. Dover or opium or morphia may act favorably.

Pleuritis being an inflammatory affection will require strict antiphlogistic regimen

abstinence from all animal food, and stimulants of every description must be prohibited, confining the patient exclusively in the early stages to mucilaginous & farinaceous liquids and in the more advanced stages allowing toasted bread, milk diet - fresh or dried fruits stewed, & oranges - Preserves - acidulated drinks &c are often much craved & are very refreshing to the patient - Rest & quiet is very essential to the patient & he should lie with the chest somewhat elevated. The temperature of his apartment should be 65° or 70° F. uniformily by day & night and exposure of the chest in all essential explorations must be studiously avoided

L A Warren

Goldsboro York Co. Penna

AN

Inaugural Dissertation

ON OR

A Clinical report of Cases

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

William C. Watkins.

Of

Howard County Maryland.

Session of 1867-68

Diphtheria.

Thomas Purnell, negro, age 28. was admitted into the Baltimore Infir-mary, March 28th 1867. Is a Sailor, married and has one child. Says he was taken sick a-bout two weeks ago at Watts Island Harbor on the Bay, whilst doing duty on board the ship-was exposed to a great deal of heavy weather wet, cold &c. his sickness commenced with a sore throat with which he is at present suffering. The night after the affection he was attacked with a chill, but has had no return since that time. The first medical

attention which he has received was last night in the way of a gargle & some pills the ingredients of which he is ignorant. He was never affected in a similar manner before, nor has he had any severe sickness of any kind in his life, has always been a healthy and robust man. His gums present a bluish tinge and bolt, his and his teeth have a dirty aspect, but his breath does not possess a fetid odor His tongue has a yellowish coating in the centre but towards the sides & extremities it is clean and red. The surface of the fauces is in a similar condition and covered with an ash

Pseudo-membraneous lymph; which condi-
-tion extends to the Schneiderian membrane
of the nose. Externally, about the angle of
the Inferior-Maxillary bone, the throat ap-
-pears to be swollen, but he thinks this is
its natural appearance. He has eaten nothing
substantial since his Sickness, and has
suffered much from thirst. His bowels
have been constipated all the while. Suf-
-fers with dyspnoea; and his general appear-
ance is that of one who has suffered for the
want of nourishment. The expression of his
countenance is that of distress. The eyelids

droop and conjunctiva somewhat injected.

March. 29th 11. A.M. Pulse 54 - and has a jerking sensation general condition about the same as yesterday. The following was prescribed by Dr. Donaldson in his morning Clinic.

℞

Acid Pyroligneous ℥ ß
Potass Chlorate ℥ iß
Aqua ℥ viij

Ft et ft Sol -
S - use as a gargle for throat.

℞ Potass Chlorat grs xv
Aqua ℥ j

Ft.
S inject in nose every third hour.

Diet - Milk ℔ iij and Beef tea ℔ ß through the day.

7. P.M. Patient says he feels better. Seems

to be much more comfortable than he had.

Surface of the fauces about the same. Pulse. 64.

Respiration 15. much pain in the head:

30th. P.M. Patient about the same.

April 1st 11. A.M. morning clinic. Throat much better. Huxhams: Tinc: ʒij. directed to be taken ter: die.

April 3rd. 11. A.M. Throat much worse —

℞.

Acid Muriatic ʒij
Aqua ℥ij
℔ S — mop the throat.

April 4th. Patient died this morning whilst sitting in a chair by his bed. His throat in a fearful condition.

Pneumonia -

John Osborn - Sailor - age 37. was admitted into the Baltimore Infirmary, March 30th 1867. Was taken sick about five days ago in New York harbor, whilst doing duty on board of vessel. Was previously exposed to much cold and wet weather. Says he was taken in the first instance, with languor and weakness. Has felt chilly at intervals but dont think he has had any distinct chill. Lost his appetite, and has had & still has a bad taste in his mouth. Has had only one passage, since his sickness, occa-

-ring last night which was of a Laxative charact-
-er. No one was sick aboard the vessel but him-
-self and he states that he did not go on shore
at all. There is great heat of skin and labored
breathing. Pulse 92. Respiration 28. Tongue
has a slight yellow coating.

31st 6. P. M. Patient no better still suffers
much with his head. Great heat of skin
Tongue coated - breathing hot and labored.
Pulse 94 - Respiration 24. was put on the acid
and Nutrient Treat. this. A. M. by Dr.
Latimer.

April 1st 11 A. M. morning clinic: Skin

warm - pulse 80. Resp: 24. Tongue coated and pasty - a little red towards the edges. Expression of countenance good - This the 6th day of disease, has had but one passage. To the right of right nipple, one inch and a half below, going diagonally to the right, we have commencing dulness, which extends upwards. The acid treat was stopped. Dr Donaldson directed him to take One quart of milk daily, Wine Whey &

℞.
Wine ℥ iv - through the day -
also ℞ Quinia Sulph grs ij
s four times a day.

April 3rd - Patient much better - bowels open. Patient expectorates the characteristic

rusty colored sputa of Pneumonia.

April 5th " Patient still improving.

April 6th " The dulness visibly diminishes on Percussion, bowels regular, Patient much improved.

April 8th " Patient recovered. Out of bed and doing well.

Erythema Nodosum.

James Pippin White - age 20 - admitted into the Baltimore Infirmary June 21st 1865. He says no one was sick on board of the vessel except the Captain who had

Intermittent Fever. Patient says he was
taken sick about four days ago. He first
had a dumb ague, followed by high fever
and pain in the head. On Sunday evening
the day he was first taken sick, an erup-
-tion appeared first on his legs, then on his hand. This
eruption is of a bright red color, aggregated,
and slightly raised - none on the face Pres-
-sure on any part of the body reddens it. These
spots have no vesicles. They are not attended
with pain or itching - Gums puffy, tongue
coated - no Catarrhal symptoms. Pulse 90.
Patient has never had Syphilis. Has

itch seven years ago; and measles ten years ago. Since March 1st, his only food has been salt beef, bread and coffee. Diagnosis Erythema Nodosum. Dr Donaldson directs.

℞ Ferri: et: Quinia: Cit: grs v
ter die.

Lemonade - one lemon to the glass five - three times a day - Diet - Milk - fresh meats and vegetables - Onions - Potatoes &c.

June 23rd - Patient improving -

June 24th Patient much better - only a slight stain remaining from the eruption.

June 25th Patient Convalescent.

Intermittent Fever.

Patrick Moore - a laborer - was admitted into the Baltimore Infirmary July 24th 1867. Resides at Locust Point. He was taken sick July 20th. Patient states that he had been feeling unwell for several days previous to the 20th inst, but had on that day a very marked sensation of cold followed by great heat ~~and sweating~~. And has experienced the same feelings every day since. He says that he feels worse in the afternoon and night than at any other time of the day. Has pains in the head, back and limbs. Has been living at

Locust Point about two years, and is a labor-
-er in the Copper works. He has never had
any serious attack of sickness in his life.
No abnormalities were perceptible, either
on auscultation or Percussion. Respiration
normal, tongue furred and bowels regu-
-lar. Appetite not very good. Diagnosis
Intermittent fever. Dr Chew ordered) -

℞ Quinia Sulph. grss v
S- three times a day

Which treatment was commenced at once.
Notwithstanding which, the paroxysm came
on about 9. O'Clock, and though not severe
-vere, it was well marked, by the usual

Symptoms - of 1st the chill, followed by fever and passing off in perspiration.

July 25th Pulse better - appetite somewhat improved - He missed his chill to-day - Quinia continued -

July 26th Patient still improving.

July 27th Patient much better, feels quite re-freshed - having had a good night's rest.

July 28th. Patient better, his bowels not hav-ing been moved for two days - Prof Chew directed -

℞ Sodae: et: Potassae: Tart: ℥ ß.
S - at once.

July 29th Patient well - The salts acted

promptly - and patient had a free operation.
The only peculiarity in this case was, that
the Paroxysms occurred in the afternoon,
~~excepting the rest~~, which is a rare occurrence.
It usually comes on in the morning or
about noon. The patient left the house to day.

Hydro-Sarcocele.

Charles Hutton - aged 25 - lives in Mary
-land - was admitted into the Baltimore
- Infirmary - September 19th 1867 - Testis
hard, swollen & painful, with an effusion
of serum into the Tunica Vaginalis. The

surface of Scrotum considerably inflamed.

Appetite good - bowels constipated -

Diagnosis Hydro-Sarcocele -

Sept 20th - Dr Butler operated this morning, by puncturing the Tunica Vaginalis, from the lower end of Scrotum, and allowed the fluid to escape & directed.

℞ Watery Sol opii
Acetate of Lead
Ad -
S - apply to Scrotum.

Sept 21st Patient doing well.

Sept 23rd. Patient about the same. Testis still swollen - The incision begining to unite - Dr Butler directed it to be reopened - Former

treatment stopped - and ℞. a Flaxseed Poultice ordered to be applied twice daily. Bowels still costive - three compound cathartic pills ordered, to be followed by Rochelle salts.

Sept 24: The Pills not having acted, the Rochell salts were administered - patient somewhat better.

Sept 25: Patient improving - The inflammation considerably abated. Dr Butler directed to be taken

℞ Potass Iodidi grs 4
S - ter die.

Sept 26: Patient still improving - bowels not having been opened since the 24th and

then not very freely - he was ordered - Rochelle Salts ℥ß -

Sept 27th. Patient says he feels much better - after having a free operation from his medicine of yesterday. The inflammation has subsided & the swelling nearly gone.

Sept 28th. Patient sitting up in his room.

Sept 30th. Patient well. bowels regular.

Oct 4th. Patient left the house to day.

Pneumonia.

William Sherwood, aged about 35 [illegible]

admitted into the Baltimore Infirmary, about four weeks ago - with Rheumatism of which he is convalescent. Has had a slight pain in right side for a couple of weeks. Last night he was taken with violent pain all over the right side, with great difficulty of breathing. Dr Latimer ordered, this morning.

℞ Vin Ipecac ʒij

12. M. - Examined by Prof. Cohen, in his morning Clinic, Dulness on percussion all over right side, diffuse bul crepitant rales and slight Pleuritic friction sound. Diagnosis - Pneumonia - Treatment -

℞.

Pulv Opii gr iij.
~~m~~ ft pilulae xij

S- One every third hour-

Light diet - Milk &c. Apply warm flax-seed poultice over the surface of the chest

June 25th - Applied another Poultice last night. Patient much better - pain and dyspnoea less. 3. P. M. another poultice applied this evening - There is no pain and very little dyspnoea - Directed to take three of the opium pills a-day.

June 26th - Patient better. The sub-crepitant rales less distinct and chest clearing up - patient spitting up large

quantities of bloody sputa. Slept well last night. Has very little pain to day - Coughs a good deal. Applied poultice this morning and one this evening.

℞ Spt Mindereri ℥ss
S. every four hours.

June 28th Patient very much improved. Poultice stopped, and flannel bandage applied around the chest.

June 29th Subcrepitus almost imperceptable. Respiration quick. He was ordered this morning.

℞. House Pills. No i
S- at once.

June 30th Patient convalescent to day

the house this morning.

AN

Inaugural Dissertation

ON

Ferrian Bark & its Preparations

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

Jas. H. Wilson

Of

Balt. Co. Md.

Session of 1847-8

Peruvian Bark and its' Preparations.

Cinchona or Peruvian Bark from the frequency of its' use by the profession, may be considered one of the most important agents found in our Materia Medica. I have not selected it so much because of any great familiarity with its characters as from an opposite consideration. Wishing to thoroughly understand an agent so extensively used, it has been my desire, as well as effort, to carefully consider this remedy. In a brief essay however it can only be hoped that a general analysis will be given and not a detailed scrutiny of every property or shade.

of quality.

An inestimable benefit has been conferred upon mankind by the discovery of this agent, especially upon those who inhabit, what are known as malarious districts. Those inhabiting these districts before its discovery were attacked and so worn out by the long continuance of the poison, (Malaria) which generates intermittent fever, and its allied diseases, that life became a burden to them: but now such is not the case for seldom, if ever, do we see persons going to the grave by these diseases, if this valuable agent has been used. Physicians, at present have no dread of malarious diseases at all

This bark is procured from a tree growing in South America on the Andes between the 10° North Latitude and the 30° South Latitude, extending over a latitude of 30°. The Cinchona tree is found in the mountainous chains of red clay soil near streams. It requires a temperature of heat above that of the level of the sea, as it is seldom found below 4000 feet above the level of the sea. There are a great number of different species of Cinchona Tree, but the most important are C. Calisaya, C. Cordamina, C. Micrantha and C. Lucarnba. It is important that it should be gathered in a dry season, generally between the months of Sept. and Nov., and in the summer

When dryed the bark rolls itself up into quills, which are in proportion to the thickness of the bark, kind and age of the tree, and size of the branches. Much care is necessary during the drying process to prevent the loss of color thereby preventing the loss of its active principles. The more rapidly the drying of the bark goes on the better. Formerly it was shipped to this country from London, but since the independence of the South American States, it is brought direct to this country.

Our Pharmacopeia recognises three specimens, viz: Pale Yellow and Red Barks, distinguished by their different sensible and chemical properties as well as by their color.

1st The Pale Bark is furnished by the C. Condaminea. It comes only in quills, with the epidermis attached, of a gray color. When broken its fractured surface is smooth, not often fibrous. It has a larger proportion of cinchona than quinia and has an astringent and moderately bitter taste. Loxa is the favorite seat of its growth.

2d Yellow Bark (from C. Calisaya). Generally comes in flat pieces, but sometimes in quills. From the flat pieces the epidermis is detached. When broken its fracture is more or less fibrous. The color of powder is a yellow orange. Has a strong bitter taste, but only slightly astringent. It contains more quinia than ~~the~~ cinchona and grows in a latitude farther south than the pale bark

3d Red Bark (from C. Sucamba) Generally comes in flat pieces, and has the epidermis on, which is very rough. Color of powder reddish. Taste both bitter and astringent. It has equal parts of cinchona an quinia; most abundantly found in Ecuador. The Carthagena barks are much inferior to those just described, and are seldom used. Some writers arrange the barks according to their geographical order, and reject the classification according to color. Peruvian bark was first introduced into use by the Jesuits, who brought it to Europe in 1632, but it did not attract much attention until some years afterwards. The Countess of Cinchon having been cured of chitum attent fever by it, brought it to Europe in 1637, and from this circumstance it received its

name, It was also called Jesuits' Bark or Jesuits' Powder from having been used by the Jesuits as a secret remedy.

From most, if not all of the earliest practitioners, with the exception of Sydenham, it received great opposition to its use

The most important active principles of Cinchona are the alkaloids Quinia, Cinchona, Quinidia and Quinicia in combination with Kinic acid; some specimens contain Tannic acid; also a coloring principle called red cinchonic.

But by far the most important ingredient is Quinia, which is obtained by macerating Calisaya bark in water acidulated with Muriatic acid, then form a solution of quinia: filter this and add lime, which throws down quinia, Chloride Calcium remaining in solution: add

boiling alcohol, this takes up the quinia, which may be decolorized by animal charcoal and separated by evaporation. Quinia is a white substance, more or less flocculent, intensely bitter; soluble in 350 parts of cold water, but a little more soluble in hot water. Soluble in boiling alcohol and ether, unites with acids to form salts. From all other substances we can distinguish it, by the emerald green color, which its solution or that of its salts assumes, when treated first with Chlorine and then with Ammonia. Quinia consists of $C_{40}H_{24}O_4N_2$ and 4 eq. of water of crystalization.

As quinia is the most important ingredient of Cinchona and the one generally used, I will now describe the

active principles of the bark, but will proceed to the description of its action.

Quinia and the other alkaloids are absorbed, as is proven by detecting it in the blood and urine, ~~the~~ ~~[illegible]~~

When given in small doses, say 6 gr per day, in doses of one gr. per dose, the appetite is increased, digestion is improved, the temperature of the body is a little elevated and the pulse is fuller, if not accelerated; showing that its action is similar ~~if not precisely~~ to the simple bitters. In an irritable state of the stomach these actions may be exalted. But when given in larger doses gastric uneasiness is produced and even inflamation of the stomach and bowels may

be lighted up. A decided effect upon the circulation is manifested; the force and frequency of the pulse is diminished. A true sedative effect is produced. If given in dose of from 12 to 60 grs. per day its tendency is to act on the brain. The phenomena which are developed by its use, are buzzing, roaring, singing and hissing sounds in the ears, also more or less hardness of hearing, when still larger quantities are given, not unfrequently perfect deafness is produced and cases are reported when the sight was so disturbed that blindness resulted. After the quinia has been discontinued, the unpleasant effects produced by it were

off in the course of two or three days. Uneasy sen-
sations in the head, such as giddiness, fullness
pain and headace are said to be produced by large
doses. In doses of gr xii per day the circulation is
not much affected. Guitous, flushing of the face
delirium tremens and even a comatose condition
are said by some, to have been brought about by
its use in large doses, when large doses are given
the pulsations of the heart are reduced, the pulse is
reduced according to the dose given; in extreme cases
it is said to be so reduced as not to be felt at the
wrist. It is maintained by some that the blood
becomes more fluid and less coagulable, but Dr

Woods thinks, that if this does happen, it is attributable to the disease and not the quinia taken Some pathologist contend that quinia has the power of reducing the bulk of the spleen, which has been enlarged by the action of the malarious poison; but by others it is denied; but it is more than probable that it does reduce it, At any rate it indirectly does it, by removing the cause. Quinia has no peculiar action upon the urinary organs, but at times irritation, of the mucous membrane of these organs, is set up, probably by its direct contact of quinia to these surfaces during its elimination, as it is principally eliminated by the Kidneys; In whatever way quinia may be applica-

either to the stomach or by enema or by the hypo-
dermic method, it operates in the same way

The theory lately put forth to the world, by Dr.
Bence Jones of London, as to the way in which
quinia acts when given for the cure of certain diseases
is, that, quinia is a natural constituent of the
human body; that it exist in the tissues, and
that malaria, (whatever it is) abstracts this natural
ingredient from the body, and whenever this nat-
ural quantity of quinia is abstracted from the sys-
tem, then the phenomena of Intermittent and
remittent fevers are shown. Dr Jones has from careful
study and experiments on the guinea pig, and etc.

animals ~~has~~ convinced himself that quinic is a natural constituent of the body, therefore when we give quinia for the cure of these diseases, we merely restore to the body what it has lost, in the same way that we do when we give iron in anemia Our able and learned Prof. of Materia Medica* takes this view of the subject.

If quinic be applied to the denuded skin it causes irritation and inflamation, but it can be employed hypodermically.

Quinia therefore when given in small doses is universally tonic: not only are the digestive organs toned up, but all parts to which it is carried by the circulation

The blood is enriched and perhaps augmented, thereby giving more energy to the heart. In these properties it agrees with the simple bitters, but it differs from them in the peculiar action it has for the cerebral functions. It operates not upon the whole encephalon, but particularly upon the centres of sensation. The sedative effect of quinia is not direct but indirect; at first the nervous centres are excited and congested, but according to the necessary result after this excitement has existed for a time, the opposite effect is produced, that of sedative depression, the time after the administration of quinia before its effects upon the nervous system are shown, is in proportion to the dose and frequency of the dose.

Some writers maintain that Peruvian Bark was known as a medicine to the aborigines of S. America before the discovery of that country by the Europeans; and others maintain that it was not known. Our learned Prof. thinks the weight of probability is in favor of the bark being known to the natives and so does Dr. Wood, although Humboldt who travelled through that country thinks to the contrary. I think it is improbable, as the above authors state, that a people so enlarged as the ancients Peruvians, should have been unacquainted with a remedy, so potent in malarious fevers, where these fevers exist in that country so rife. It is stated that the aborigines

of that region are affected with this disease, and to alleviate their sufferings and get rid of this most pestilential disease, they go the cinchona trees and grate the bark.

As an antiperiodic Peruvian Bark holds the first rank. Quinia is the preparation generally given as it is through the alkaloids, that its action is produced, and quinia being the best alkaloid it is the one generally given. Peruvian Bark is a true specific and perhaps the only specific found in the Materia Medica. Most of the other medicines called specific have with more or less justice been shown not to possess a specific power. Thus Belladonna is said to

not to be a specific for the itch, because it is argued that it is the Lord that cures ~~and~~ the disease by ~~of~~ by exciting the insect [illegible], but let this be as it may we known that Peruvian Bark has the power of curing short and curing periodic diseases caused by malaria. Dr Ward does not remember a single case, since the management of the medicines has been understood, that has not been cured by it. Dr. Ward thinks its action as an antiperiodic is more of a superseder, that is, it substitutes its own action in a part or organ, thereby excluding, displacing or driving out the disease previously existing. He supposes the paroxysms are produced by an influence acting through

the cerebral centres and if these centres be preoccupied by a strong impression from some other source, then they may be rendered insensible to the morbid influence and the paroxysms is set aside. But if the theory of Bence Jones be the correct one, then we cannot understand how it acts and destroys a case intermittent fever; but let its action be as it may, we know from experience that regular periodical diseases can be cured by quinia

Formerly it was thought necessary to purge the system, before giving quinia, but now it is known not to be necessary, if we have time on the hands we can, it is well to premise these

by a cathartic, or if there is acute inflamation of the brain, it may be necessary to treat this affection first and after its removal then to give quinia. If the periodic disease is malignant or pernicious no time should be lost, therefore you should proceed to give quinia at once, for less danger will be produced by the quinia, than by the disease if not cut short. When there is inflamation of stomach it had better be given by enema or hyperdermically. As regards the quantity to be given and the time to give it, there is a difference of opinion. Some practitioners prefer giving it in small doses and frequently repeated as gr 2 to 5 every 2 to 3 hours.

Others give it in larger doses as 10 grs. Dr Bennett gives 5 gr every 4 hours ~~and 10 just before the paroxysms~~ during intermission. Most practitioners give it during the intermission especially is this the best plan if the intermissions are long; If the intermissions are short I think it is best to give it during the sweating stage in large doses When the fever is malignant then give it largely and at any time, Let the system under its influence as soon as possible. After the fever has been broken it is better to continue the medicine for a short time to prevent a relapse. Huxens tincture is a good preparation. Besides its curative power ever intermittents it has also a decided prophylactic power, as is proven

by the experience of a number of Physicians. From the reports in the British Naval & Medical papers we find that on the coast of Africa when men have been exposed to malaria, if they took quinine before exposing themselves to its influence, they were protected from Malarious fever, but as soon as they did not use quinine before exposure they were attacked with these fevers. Prof. Watt says "It seems reasonable to suppose that the same impression on the system which prevents the return of the paroxysms will prevent the occurrence of the first. Experience has established the correctness of this inference".

Quinia is not only useful in intermittent and

remittent fevers, but in all diseases of a periodic character. When the system is exposed to the influence of Malaria, it is found that all diseases are benefited by its use.

It was at one time thought useful in continued fevers as an abortive, but Dr Bennett has found no benefit from the use of quinine in Typhus or Typhoid fevers. It has no power over these fevers, and no doubt but at times its use has lighted up or increased the cerebral affections. Typhoid and Typhus fevers are disease are diseases that run a difficult course.

At one time it was thought to have great power over Rheumatism, but Dr. Ward thinks the only

time when it is necessary to use it in Rheumatism is when, there are are profuse sweats during sleep, and at no other time. In ascites from enlarged spleen, it is useful in reducing the spleen, thereby removing the cause of the dropsy and consequently removing the dropsy

Quinine is of extreme value in collapse in the advanced stages of disease, either by mouth or enema.

In advanced stages of Rheumatism, when there is great debility from night sweats, it is then a good tonic, and is of especial use in the migratory kinds of Rheumatism

Quinine is a very [illegible] in convalescence from all acute diseases

as a tonic it should be given in gr. three
three or four times per day. Although used a great
deal as a tonic, its chief power is that it has
over miasmatic fevers.

Preparations

Powdered bark, is objectionable on account of
its bulk. Nausea and vomiting is apt to be
produced. When used Calisaya Bark is the best.
Dose as an antiperiodic 3 i to ii during intermission
Dose as tonic gr x to xx. Hot coffee is said to be
agreed which to take it in. Sulphuric acid is
also said to correct its taste.

Dose as above infusion or powder each of the

bark. There is also a compound infusion.

There is a decoction from the red and one from the yellow barks

There are also two tinctures, a simple tincture and a compound tincture known as Huxham's tincture, which contains orange peel and aromatics. There is also an extract

Sulphate Quinia is by far the most important preparation of Peruvian Bark, and it is the preparation chiefly used, in fact the only preparation used. At least none of the others are used if this can be had. It is prepared from Quinia, by boiling it with boiling water and sulphuric

acid, purifying with animal charcoal and crystallizing
It is in white, silky, flexible needle shaped crystals
in tufts or interlaced, inodorous, intensely bitter
soluble in 740 parts of cold water, 30 parts boiling
water and 60 parts alcohol. It is readily decomposed
by the addition of a little acid. It is liable to
be adulterated. May be given in substance
or solution. The pills are made with gum or
honey and contain gr i of the salt. gr 12 of the
salt may be considered equivalent to ℥ i of the
bark. As this has been the salt alluded
to in all cases when spoken of in this thesis
it is unnecessary to say more about it here

Cruede Quinia, Quinoidia & amorphous quinia,
Sulp. Quinidia and Sulphate Cinchona are all
given at times, They should be given in
the same doses as the Sulp. of Quinia with the
exception of the last, which should be given
in ½ greater doses than the ½ Sulp. Quinia.
I have not described these preparations as they
are of less importance than Quinia, and I thought it
would be better to devote my time to quinia in
its actions and also because I think my thesis
is of sufficient length,

AN

Inaugural Dissertation

ON

The Circulation of The Blood

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

Charles C. Moorehead

Of

Howard Co. Maryland

Session of 1867 & 68

The Circulation of The Blood

C Curtis, Moorehead

Physiology is indebted to Wm Harvey of England
for one of the grandest and most
discoveries

The circulation of the blood in man
before this time was concealed by the dogmatic
theories of the older anatomists.
Many of the different parts of the circulation
had been suspected and some proven by
experiment before Harvey's time, but they
were so intimately blended with error
that the discoveries were of no practical
importance.

Before the second century three great

perforated, and the veins to carry the blood
to all parts of the body.

The first great error was refuted by Galen
"If we open an artery" says he "Blood issues
out; no air escapes the arteries contain
blood"

The second error was exposed by Vesalius
in his discovery of the imperforation of the
interventricular septum.

Among all the important facts relating to the circulation were at this time known, but it was not until after the great mind of Harvey grasped the whole truth that the circulation was understood.

Harvey had not only the merit of putting the already discovered facts together, but of overthrowing older theories and dogmas and establishing truth.

The organs engaged in carrying on the circulation in man are four in number,

1st The heart "a double central and hollow muscular organ" which receives the venous blood at two orifices and drives it out at a

single orifice by a succession of contractions of its muscular walls.

2nd The arteries a series of branching tubes which convey the oxygenized blood from the heart to all portions of the body.

3rd The capillaries "a network or plexus of minute inosculating tubules" which are closely interwoven with the tissues, being separates from them by a membrane from 1/2500 to 1/25000 of an inch in thickness.

4th The veins a set of efferent vessels which receive the blood after passing through the capillaries, and have a common centre, the heart.

The heart like the piston of a steam engine by its mighty throbs forces the

life giving and life supporting current to all parts of the organism, becoming the emblem as it is the focus of vitality, for with its cessation the body perishes.

It is a hollow muscular organ of a conical form, and is divided into four cavities viz. A right auricle for the reception of the venous or carbonized blood from the superior and inferior venae cavae.

A right ventricle for the reception of the blood from the right auricle also for the expulsion of the blood through the pulmonary artery into the lungs.

A left auricle for the reception of the blood after it has passed through the respiratory organs. A left ventricle for

the reception of the blood from the left auricle and for the expulsion of the blood by its contraction into the aorta.

The passage of the blood in and through the cavities of the heart is not accomplished in a steady flow, but by alternate contraction and relaxation of that organ, also by the opening and closing of the different valves of the heart.

The internal cavities of the heart are provided with valves arranged by nature in such a manner as to facilitate the flow of blood in one direction and are equally effective in preventing backward or regurgitory flow.

The blood is conveyed into the right auricle

by three openings. viz. The vena cava superior which brings the blood from the superior extremities, and the vena cava inferior which conveys it from the inferior portions of the body, also the coronary sinus which empties the blood from the coronary veins.

The auricle is always receiving the blood until immediately preceding the contraction of the ventricle then the auricle contracts forcing the remaining blood into the right ventricle. The venae cavae have no valves but are supplied with a fold of muscular fibres which to some extent prevent regurgitation.

At the orifice between the right auricle and right ventricle is the tricuspid valve.

consisting of three segments attached by their bases to the auriculan ventricular orifice and by their sides to one another.

The free margins and ventricular surfaces of these segments give attachment to a number of small tendinous cords called "chordae tendineae" the extremities of which are alternately attached to the valves and to the "columnae carneae" which are muscular columns projecting from the inner surface of the ventricle.

The auriculan ventricular valves have muscular fibres and muscular contraction. The Tricuspid valve opens inwardly or into the right ventricle permitting the blood to flow freely into the ventricle, when the ven-

Tricle contracts this valve closes not not so perfectly as to allow no regurgitation.
The principle of the safety valve is in this action. If there be too much blood in the right ventricle this valve will permit a small portion to regurgitate into the right auricle.
At the opening between the right ventricle and pulmonary artery is another set of valves. Called semilunar valves, consisting of three semicircular folds attached by their convex edges to the walls of the artery and opening into the artery so that when the contraction of the ventricle forces the blood against them they open and allow the blood to flow into the artery and through

the arteries into the capillaries of the lungs. when the ventricle has emptied its contents into the pulmonary artery these valves close and prevent the blood from flowing back into the ventricle. These valves are also safety valves and when too much has been forced into the pulmonary artery they also permit a slight regurgitation.

Thus the cartonized blood at each contraction of the right ventricle is forced through the pulmonary artery into the pulmonary capillaries where it gives off the Cartonic Acid and absorbs oxygen.

It then passes into the pulmonary veins which convey it into the left auricle The blood in passing through the lungs

becomes altered in color from a dark to a bright red, a change due to the absorption of oxygen by the red corpuscles.

The pulmonary veins are not provided with valves. The blood flows through the left auricle into the left ventricle in a continuous stream until just before the ventricle contracts when the auricle suddenly contracts forcing all the blood in it into the ventricle through the mitral valve which is attached to the circumference of the orifice between the left auricle and left ventricle.

It is the muscular valve of the left side of the heart. It is larger and much stronger than the correspondent valve of the

right side and takes its name from a fancied resemblance to a Bishop's Mitre.
It consists of two segments which are supplied with "chordae tendineae" and attached like those of the right side.
As the blood is forced from the left auricle into the left ventricle this valve opens but when the ventricle contracts upon its contents the valve is immediately closed effectually preventing any backward flow of blood
At the Aortic opening there is another set of valves called the Semilunar Valves
They are similar to the semilunar valves of the pulmonary artery. and are attached to the orifice of the aorta by their convex edges and are stronger than those of the

pulmonary artery.

These valves open into the aorta. Thus the blood being expelled by the contraction of the ventricle closes the mitral valve and at the same time opens the semilunar valves. which in their turn close as soon as the ventricle has emptied itself into the aorta.

The free edge of the semilunar valve has at its middle a small "nodule" called Corpus Arantii and between the valve and the artery immediately behind each segment is a dilatation known as the Sinuses of Valsalva. This corpus Arantii fill the triangular space which would otherwise be left when the valve closes. Both the semilunar valves of the pulmonary artery and the aorta are provided

with the "corpora arantii" and the "sinuses of Valsalva".

After the blood has been forced into the aorta we still have this contraction and expansion continues to a certain extent. It is not so powerful, but it is mechanically the same force somewhat modified.

The arteries are those tubes which convey the blood from the left ventricle to all parts of the body.

The blood when driven from the heart into the aorta meets with the blood in the aorta and as all the fluid can not be immediately driven onward it must necessarily occupy a larger space than the artery permits. This is provided for by the expansion of the

artery owing to the elasticity of its middle coat. when the left ventricle has forced the blood into the Aorta it first expands then reacts upon its contents and the blood is driven forward in the arteries being prevented from regurgitating into the ventricle by the shutting of the semilunar valves of the aorta.

We now see that although the heart's action is the primary it is not the only force employed in sending the blood forward through the arteries.

The blood runs through the arteries not continuously, but in a remittent stream travelling at the rate of a foot or 13 inches per second.

In the arteries near the heart the flow is more

intermittent but as we approach the smaller arteries the character is somewhat changed the flow becoming remittent and finally in the smallest arteries almost constant.

This is caused by the increased distance from the primary force and by the changed character of the tubes themselves. In the larger arteries the elastic coat is thicker and more elastic than in the smaller. It gradually changes from elastic in the large to muscular in the small arteries.

From the arteries the blood passes into the capillaries. A minute network of vessels which pervades every tissue of the body and freely inosculate forming plexuses

The capillaries are a continuation of the in-

ternal coat of the arteries.

The diameter of the capillaries is on an average about 1/3000 of an inch and the walls of the same are only 1/2500 to 1/5000 of an inch in thickness. This very thin partition being all that separates the blood from the tissues. The capacity of the capillary system is immense. it has been estimates to be 500 times that of the arteries, it is unquestionably several hundred fold that of the arteries. In the capillaries the blood performs its office through which the oxygen is given off from the red corpuscles, and at the same time the Carbonic acid is absorbed from the tissues. Through the capillaries the

blood gives to each tissue the proximate principles required for its reparation. which is accomplished by exosmosis

The course of the blood through the capillaries differs from that in the arteries flowing slowly and steadily at the rate of one inch per. minute. its direction cannot be determined either from or into the arteries this is owing to the larger surface it must traverse the extent of the capillaries much exceeding that of the arteries From the capillaries the blood is forced by the "vis a tergo" into the veins.

Here we meet with several changes in its character, the blood is no longer bright red. but of a dark color. This is due

to the carbonic acid the red corpuscles have absorbed from the tissues.

The veins are provided with valves permitting the blood in one direction only, towards the heart. The blood is now flowing in a steady current. The veins unite and empty into the right auricle in two branches, the Superior and Inferior vena cava. The veins differ from the arteries in not possessing as much of the elastic and muscular tissue and are from the same cause more yielding than the arteries collapsing in consequence when not distended with blood. Though capable of enduring a greater pressure than the arterial tubes in consequence

of the fibrous tissue with which they are pro-
vided. They possess three coats. Viz. an internal
coating in structure like that of the arteries
a middle coat not containing as much
muscular and elastic tissue as that of the
arteries but more connective tissue, an
external coat similar to that of the
arteries. The veins have valves preventing
a reflux of the blood, formed by a redu-
plication of the internal and middle coats
The contraction of the heart is not the
only power propelling the blood through
the veins, but is assisted by three other
forces. Inspiration expands the chest
and diminishes the pressure upon its
contents. Thus drawing the blood from

the veins into the chest.
The contraction of the voluntary muscles compress the veins driving the blood onward it being prevented from regurgitating by the valves. and the "vis a tergo" from the capillaries the only constant and most important force.
We have now followed the blood from the right auricle through the heart lungs arteries and capillaries and veins back to the starting point and will now notice more particularly the heart's action.
The locomotion of the heart during the beat is from left to right This is caused by the arrangement of the

superficial fibres which pass from the base of the ventricles from right to left towards the apex in a spiral direction.

The impulse is the striking of the apex against the ribs and is synchronous with the systole, first sound and radial pulse.

The sounds of the heart are Two, the first and second. The "Lub dub" sounds The first sound is loudest and longest is synchronous with the systole, impulse and radial pulsation, which is heard loudest between the 5th & 6th ribs the first sound occupies 4/10 of the whole time. It has three elements. viz. Impulse

muscular contractions and valvular element
The second sound is shorter and weaker
and occupies 3/10 of the time. the remaining
3/10 being devoted to repose of the heart.
The second sound is heard most dis-
tinctly between the 3rd & 4th Ribs. It is syn-
chronous with the diastole immediately
after the first sound and caused by the
flapping back of the aortic and pulmonary
valves.
The time required for the blood to
make a complete round of the cir-
culation is estimated to be 23 seconds.
and the time for the whole of the blood
to pass through the heart is in proportion
to the weight of the individual. In a

man weighing 145 lbs. it will take less than
a minute or about 48 seconds.

AN

Inaugural Dissertation

ON

The Circulation

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

A. Anderson Hays

Of

Jefferson Co Virginia

Session of 40th 1867-68.

An

Inaugural Dissertation

On

The Circulation of the Blood

Respectfully Submitted

By

N. A. Ware.

A Thesis on the Circulation!

In the present enlightened generation of the nineteenth Century, it is not easy for us to appreciate the many difficulties which beset the path of ancient anatomists and Physiologists. At that period the field of science was wide and indeed much was untrodden; Tuas then Theory took the place of experimentation & observation. As Prof Johnson remarked in 1867 in a Lecture upon the Circulation "There was more faith in men than in the age in which we live; and a dictum with a great name attached passed current for truth in spite of palpable evidence." But now doctrine

is not accepted in virtue of any name, but in consequence of its undeniable worth proved by facts. The see before the fourteenth century anatomy was not largely cultivated by dissection of the human body, nor permitted to be practically taught in public. In this account, so called facts in human anatomy were in the main influential. But again how different do we find it at present, in the broad sunshine of the Physiology of observation, we wonder at the antiquated inductive Physiology. But we take no account of the spirit of a former age, when people were bound down by tradition, when all aid was withheld from the profession, while now every means for the advancement of Medical Science is at our disposal. [illegible] men of the 18th century upon the difficulties of our ancient [illegible]

The discovery of the circulation of the blood does not belong and ~~[illegible]~~ indeed, hardly belong to one man or to one epoch. We see that many errors had to be refuted; and for each error a truth had to be substituted. This was accomplished but slowly, and little by little. Among the errors that concealed the circulation of the blood are

1st, The erroneous idea that the arteries contained air only,

2nd, That the interventricular septum was perforated and the

3rd was that the veins carried the blood to all parts of the body instead of bringing it back from them.

Galen refuted the 1st of these viz: that the arteries contained air, by opening them, when he discovered blood to flow from them and not air; hence he declared they

contained blood, and did not contain air as the ignorant had before supposed. The 2d difficulty and error was removed by Andreas Vesalius, by proving the septum not to be perforated. And the 3d error was somewhat obliterated by Servetus in the sixteenth century when he published a book describing the pulmonary circulation, and there now remained but a step farther and the circulation would have been complete. Six years after Servetus, Realdo Columbo discovered the passage of the blood from one ventricle to the other. And in 1593 Cæsalpinus described the passage of the blood from the right heart through the lungs to the left heart. Fabricius in 1574 discovered the valves

in the veins. Now we see the different tints of the circulation had been discovered, but the parts remained separate, distinct and unconnected. And now [illegible] [illegible] [illegible]

He returned to London and he was made lecturer
in on anatomy and surgery. In 1616 he laid down
the discovery of the circulation of the blood in his lectures
and in 1628 his famous work & master piece dedicated
to Charles 1st appeared before the world - having verified
the statements it contained by many years experi-
ments. I have however dwelt as long upon the history
of the circulation as my time will admit. So I must
get on to its particular parts & phenomena. But
before entering into the different organs of the cir-
culation let me here say that Harvey did not
complete the discovery for his discovery though greatest
was at that time is small compared to those

[illegible] time. He in reality only discovered the conveyors of the blood. which we now know to form but a minor part in this great system. Harvey himself did not credit the discovery of the Lymphatic circulation, and treated it lightly when announced to him, he was however very old and should be excused by this error of his. I will go as far as to assert that any one living in the present century with simply the knowledge of Harvey would be considered comparatively ignorant upon the subject, so great has been the improvement made upon Harveys discovery - I merely make this statement to show the rapid [illegible]

medical science in the last few centuries.

The circulatory apparatus consists of four different parts viz: 1st the heart. 2d the arteries. 3d the capillaries 4th the veins. Now the heart being the great centre of the circulation of the blood. The tree as it were from which branches are sent out and returned from all parts of the body. It is a hollow muscular organ which receives the blood at one end and repels it at the other. Now its structure varies in different animals owing to the different arrangement of the respiratory organs. For the respiratory apparatus being one of the most important in the body and the one most closely connected by anatomical relations with the

organs of circulation, the latter are necessarily modified in structure to correspond with the former. Shall confine myself to the adult circulatory apparatus in Mammalia and as man is at the head I will proceed to describe his heart. The human adult heart weighs from 8 to 10 ounces in female & 10 to 12 ounces in the male - So we see our anatomical knowledge shows us that the man's heart is the largest anatomically but not morally

Position of the heart. It lies immediately behind the sternum extending from the second to the fifth rib and between the lungs - The pericardium holds the heart in its place being attached to the base the [illegible] of the heart [illegible] [illegible]. The heart is [illegible] in the [illegible] and [illegible]

The heart anatomically is between the lungs, but Physiologically the lungs are between the heart - for there are two Physiological hearts - the one containing venous and the other arterial blood, and the lungs being the communication between ~~between~~ the two. The anatomical heart contains four cavities a Right & left Auricle and a Right & left Ventricle. These should not only be referred anatomically but Physiologically. The Auricles have two sets of muscles the 1st set is common to both but the set remaining are different in each auricle. I have said previously that these cavities were separated by certain constrictions and their constricted orifices, by

which the different cavities communicate are known as the auricular, auriculo-ventricular, and aortic & pulmonary orifices the auricular orifices being the passages from the vena cavae & pulmonary veins into the ~~into the~~ right and left auricles. The auriculo-ventricular being the orifice leading from the auricles into the ventricles; and the aortic & pulmonary orifices leading from the ventricles into the aortic and pulmonary arteries respectfully. Now these orifices are supplied with valves which allow the blood to flow through, they then [illegible] preventing [illegible] tion. Course of the blood through the heart. From the superior and inferior vena cavae the blood passes in to the R. auricle where it flows immediately through

into the R. ventricle. Now on contraction of the R. ventricle the tricuspid valves shut back, preventing its return into the auricle. It is thus driven through the pulmonary artery to the lungs, where it becomes arterial and is conveyed from the lungs by the pulmonary veins into the L. auricle and flowing from thence into the L. ventricle it is here expelled with great force through the aorta to the different parts of the body. This movement of the blood through the heart is not a continuous flow, but is accomplished by alternate contraction and relaxation of the muscular parietes of the heart. So that with every impulse, successive portion of blood are

received by the auricles delivered into the ventricles &
by them discharged into the arteries. Each of these
actions is called a beat or pulsation of the heart.
Now each pulsation is accompanied by certain
phenomena which have to be studied in detail.
These are the sounds movements and the pulse.
The R. Auricle is greater than the L. Auricle in capacity and so is the
R. ventricle greater than the left ventricle. but the walls
of the L. Auricle & ventricle are much thicker than
those of the R. Auricle & ventricle. The ordinary ca-
pacity of the ventricles is [illegible] to three ounces
Sounds of the heart. They are two in number the first
and second. The 1st sound is synchronous with systole of

heart. the impulse of the heart, the closure of the auriculo ventricular valves and radius pulsation. It is heard with greater intensity over the 5th rib & 5th inter costal space. It is long dull, and smothered in tone, and occupies 4/10 of the entire pulsation. The second sound follows immediately upon the first. It is heard most distinctly at the situation of the aortic and pulmonary valves - viz: over the sternum at the level of the third costal cartilage. It is sharp and quick & short - occupies 3/10 of the entire pulsation of the heart, and is followed by an equal interval of silence: After which the first sound again recurs. The cause of the second sound is universally -

acknowledged to be the sudden flapping back of the aortic and pulmonary valves. The first sound has been attributed to various causes by different writers upon this subject, but the general received opinion is, that it is dependent upon the closure of the auriculo ventricular valves which is synchronous with the systole of the heart. It also has shorter sounds, but of these I shall not allude as my thesis is confined to the normal circulation.

Physiological function of the heart. This organ is the first to exhibit life in the animal and the last to cease its action. It has but little repose from its

other muscles of the body. Its action is purely mechanical. The heart presides over the organic life.— While the brain (which is intimately connected with the heart) presides over the animal life. The heart beats when only a straight tube, but it is only when it gets sufficient power that we can distinguish its pulsation. Now life begins when change begins & where there is change there is motion, and where there is motion there must of necessity be a centre of motion. And this we know to be the heart. We know the capacity of R. Ventricle to be smaller than the R. Ventricle but we know ~~that we~~ ~~know~~ it power of contraction to be five or instinct as great as that of

the R. ventricle, and we see at a glance the physical reasoning of this. For while the R. ventricle has merely to expel the blood into the lungs, a very short distance, whereas from the L. ventricle it is thrown throughout the entire circulation to the extremities of the body. The blood upon the right side of the heart is much warmer than that on the left side because it proceeds immediately from the liver (where the blood is w. m.) to the right side and after heating there [illegible] through the lungs. We see the heart [illegible] has a contractile power of its own independent of the nervous system. The contraction of the [illegible]

[illegible] this the cause of the contraction, will be the ultimate cause is [illegible] It has been, but it is not that it [illegible] as contractile [illegible] [illegible] [illegible] [illegible] circumstances necessary for the continuation of the contraction. The fact of there, is, that it must have blood & thus must be the [illegible] [illegible] [illegible] [illegible]

nutrition for its perfect action. The pulse is the key to the heart, [illegible] it is by it we tell its action and condition.

We now come to the 3rd or Arterial Circulation.....

The arteries are a series of branching tubes which commence with the aorta and ramify throughout the body [illegible] the blood to all the vascular organs. They are composed of three coats. 1st An internal homogenous tunic; continuous with the endocardium. 2nd A yellow elastic coat, no muscular fibres & supplied with no blood vessels. 3rd An external coat composed of [illegible] layers of [illegible] [illegible] [illegible] [illegible] is supplied with blood [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] & greater [illegible]

consists in the structure of the middle coat — in the larger arteries the middle coat is thick, and has no muscular fibres. [illegible] elastic [illegible] the smaller arteries [illegible] this coat composed entirely of muscular fibres: The larger arteries therefore, possess a remarkable degree of elasticity, and little or no contractility, while the smaller possess contractile power but no elasticity. Cause of the movement of blood through the arteries. The contraction of the heart is the primary cause, but it is regulated and modified by the elasticity of the vessels. At the time of the hearts contraction [illegible] of the

ventricles act powerfully upon its fluid contents:
The Auriculo Ventricular valves at the same time sh
utting back preventing the regurgitation of the
blood back into the ventricles. [illegible] forced out through
the aortic orifice. A charge of blood is therefore driven
into the arterial ramifications, distending their walls
by an additional quantity of fluid, forced into their cav
ities, when the ventricle immediately afterwards [illegible]
the active distending force is removed. and the elastic
arterial walls reacting upon their contents would
[illegible] blood back again into the heart, were it
not for the shutting back of the semilunar valves
which close the aortic orifice. The blood is [illegible]

[illegible] under the pressure of the arterial elasticity

We find the smaller arteries under control of the sympathetic nerve it supplying branches to its muscular coat - The rapidity of the passage of the blood through the arteries varies in different parts for example - we see it travelling at the rate of 13 inches per second - in Carotid 10 inches & extremities 2 inches per second - So we see the pressure of the blood is very small towards the extremities, the circulation in the extremities varies according to the activity of the parts.

Having briefly glanced at the arterial circulation I will with equal brevity describe the 3d or capillary circulation

The capillary blood vessels are minute inosculating tubes which permeate the vascular organs, in every direction, bringing the blood into intimate contact with the substance of the tissues. They are the conveyers (so to speak) of the blood from the minute arteries to the commencement of the veins. The capillaries have but a single coat which is a continuation of the internal coat of the arteries. They are exceedingly minute varying in diameter from 1/1000th to 1/5000th of an inch. Its circulation is independent in a great measure of the heart's contraction. Since it has been seen to continue after the heart had been removed. The activity of the capillary circulation varies according to the activity of the parts. But the blood

is forced through the capillaries by the visatiu-
me rapidity of this circulation is much less than
either of those preceding, the blood travelling at
the rate of two inches per minute. The nervous po-
wer is prominently manifested, as in blushing
pallor & erection of certain tissues.

Venous Circulation. Having gone over three of
the organs, composing the circulatory apparatus,
we now come to the last or venous circulation.
The veins are the vessels which collect the blood
from the tissues and convey it to the heart. Like
the arteries they are composed of three coats,
But not so strongly developed as in the arteries

We find the internal membrane thrown into valves to prevent the reflux of the blood. Capacity of the venous system is considerably larger than the arterial, its holds two or three times as much as the latter. The flow of blood through the veins is less powerful & more regular than through the arteries. This flow is mainly due to the vis à tergo assisted by the vis à fronte, in the suction power of the heart. It is also assisted by inspiration. Also in muscular contraction we see is an important adjuvant to the venous circulation. Every contraction being accompanied by a pressure upon the veins of the parts, and as the blood is prevented from flowing backward by the valves it must be driven on [illegible]

and the heart. We here see a peculiarity of the pul-
monary circulation, that the venous blood is
carried from the heart into the lungs by the pul-
monary arteries & the arterial blood is conveyed from the lungs to
the left side of the heart by the pulmonary veins.
Portal circulation is also peculiarly arranged. The
venous blood ramifying through the vessels disposed like ar-
teries and having to overcome the resistance to an addition
al capillary system in the liver before reaching the
the heart. The portal circulation is entirely independent
of the pulsation of the heart, and differs from all the
other venous circulations in the fact that there is
an intervening organ between the vein & the heart.

The blood nuclear of passing directly from the portal sinus to the heart, is forced to traverse an organ seated upon its course to the centre of circulation. With regard to the rapidity of the venous circulation, no direct results have been obtained by experiment since circumstances so modify it. But the velocity of the venous blood as compared with that of arterial is less to three or eight inches per second. The calculation is however altogether proximate & not exact, since the venous circulation varies in so many instances & in every part of the body. It expresses however with sufficient accuracy the relative velocity of the arterial & venous circulation at corresponding parts of their course.

A. A. Hare

AN

Inaugural Dissertation

ON

Acute Bronchitis

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

Thos. F. Munroe

of

Quincy Florida

Session of 1867-68

Bronchitis

This disease as its name implies is inflammation of the lining membrane of the bronchial tubes, and in its ordinary form is one of the most frequent of pulmonary affections. It is a very common affection in all portions of the world. It may be either primary or secondary as regards other pulmonary diseases. That is it may be developed as a complication of some disease such as pneumonia

tuberculosis or it may not be pre-
ceded by any other disease of the lung.
When it occurs primarily it is symmet-
rical, that is, the bronchial tubes are
affected alike on both sides, but
when developed as a complication of other
diseases of the lungs it is circumscribed.
The latter is more limited than the
former. We have also various other varie-
ties of bronchitis such as capillary
bronchitis when the smaller bronchi
are affected, epidemic bronchitis or
influenza, diphtheritic bronchitis which

is characterized by the exudation of lymph.
We have also the acute, subacute and
chronic forms, but I shall confine
myself to the discussion of the acute
form only, considering that a dissertation
on all or even a few of the different
forms of bronchitis would be altogether
too voluminous and would occupy too
much time, both as regards myself
and the learned gentlemen to
whom it is respectfully submitted.

Acute bronchitis.

Anatomical character. Acute bronchitis rarely in itself proves fatal, consequently the opportunities for making observations have been very limited. The redness and swelling after death may be found to be either uniform or more marked in patches or zones. The inflamed membrane is more or less softened by the inflammation and the discased tubes contain more or less mucopurulent matter with predominance of the character of either mucous pus. Inflammation

below the trachea very rarely leads to ulceration. The lubes on both sides are equally affected, unless it has been preceded by some pulmonary disease—

Causes— Cold is by far the most common cause of acute bronchitis, especially when applied partially to some part of the frame as to the back of the neck, the feet &c or to the body when previously heated by exercise and in a state of perspiration— It is a well known fact though that those persons who are [illegible] exposed to the [illegible] of the [illegible]

and who sleep in huts, tents or the open air, such as hunters, [illegible] are rarely attacked with bronchitis. Acute bronchitis may occur secondarily, and frequently forms an element of other diseases elsewhere than the lungs, as in measles, scarlet fever and typhoid fever. It may be caused traumatically by the local action of irritating gases when inspired. Inhalation of chlorine gas or the fumes of sulphurous acid will produce it. In some persons owing to an idiosyncrasy, fragrant odours, the powder of spices, odor of feathers or of [illegible]

will cause an attack of acute bronchitis but to these latter cases we generally have asthma added. It also occurs periodically in some people about the same time every year without any obvious cause whatever.

Symptoms — Acute bronchitis is generally preceded by inflammation of the nasal passages or coryza. The inflammation then passes downward either affecting the pharynx and larynx in its course or passing by them altogether to the bronchial tubes but in some cases the latter are attached at once without any inflammation of

+ Nuisance and [illegible]

the air passages above. The patient rarely has a well marked chill, but chilly sensations occur which are followed by flashes of heat. The appetite may be more or less affected and the patient complains of lassitude with a general feeling of malaise. There is a feeling of soreness and diffused heat in the upper part of the chest, and often of tightness and constriction unaccompanied with acute pain except sometimes in coughing. In severe cases these sensations are very distressing and attended with feelings of oppressed breathing and sometimes difficult

-lty of inspiration. The cough is one of the first and most prominent symptoms. At first it is dry and painful but can-not well be suppressed it produces sensations of scraping, tearing or rend-ing behind the sternum. A deep insp-iration or breathing cold air excites a set of coughing which often occur in par-oxysms. The expectoration is at first slight consisting of a transparent, glairy viscid substance sometimes streaked with blood. At this stage the patient is usually affected with frequency of the

pulse, heat and dryness of the skin, head ache, and indeed all of the symptoms of fever. In some, the above symptoms gradually abate without any increase of the bronchial secretion, but in the majority of cases after a day or two the patient expectorates more freely, the sputa becoming thick yellow and greenish. Along with this change in the character of the expectoration there is an amelioration of other symptoms the cough becomes easier, the [illegible] about the chest are diminished, and the fever abates, the patient gradually returning to

a state of health but often with a slight cough which generally remains for some time. When the patient recovers with a cough, he is more liable to relapses from slight causes. The average duration of an attack of acute bronchitis is from four to twelve days though occasionally, it runs on to two or three weeks when it is apt to become chronic. The general character of the disease is sthenic with a strong full pulse. Occasionally it is asthenic, but this is due to the peculiar state of the constitution at the time. This disease may be divided into two stages. The first

stage embraces the time during which the expectoration is scanty, transparent and [illegible]. the second extends from the time when it becomes thick, yellow, and [illegible] to convalescence. Diagnosis. Acute bronchitis is more apt to be confounded with pleurisy or pneumonia than with any other disease. I will give the most prominent points (chiefly negative) relating to symptoms which are involved in the differential diagnosis; the absence of lancinating pain and the pain which is felt being substantial the expectoration is not rusty but other

Contains no blood or only a small quantity in streaks, there is no circumscribed flush of the cheeks. These facts however are not sufficient for a positive diagnosis in relation, for the symptoms of pneumonia and phthisis which are absent in bronchitis are by no means found to be uniformly present in all cases of the two former diseases the symptoms above given though in conjunction with the results of auscultation and percussion generally render the diagnosis easy and positive. In acute bronchitis percussion elicits

the resonance of health. The vocal resonance is generally unaffected and the respiratory murmur may be weakened but not otherwise altered. Suppression of the murmur over a portion of the chest may occur temporarily from some obstruction of a bronchial tube by an accumulation of mucus. These points warrant the exclusion of pneumonia and pleurisy. The dry and moist bronchial rales may or may not be present at the time the patient is examined. Their presence more or less [illegible] is indicative of the existence of the

disease, but the absence of the disease is not to be inferred on account of the absence of these signs.

Prognosis. The prognosis of [illegible] is always [illegible], except when it occurs in the young, the aged and the feeble. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] accumulation of the products of inflammation in the [illegible] which may produce collapse of the pulmonary lobules, especially in [illegible] children. Death is then very apt to [illegible]

disease does not [illegible]

disease of very little gravity. In most

induce either pleurisy or pneumo-

[illegible]

attention to hygiene. I do not think

that general bloodletting is ever necessary

but the taking of blood locally [illegible]

or leeches is often beneficial in the first

stage, when the inflammation and febrile

[illegible] antimony in

[illegible]

[illegible] as a diaphoretic and expectorant to

moderate the fever [illegible]

[illegible]

cathartic [illegible]

[illegible]

If the disease lingers and becomes chronic the sulphate of quinia and other tonic remedies must be

AN

Inaugural Dissertation

ON

Scarlatina or Scarlet Fever

Submitted to the Examination

OF THE

Provost, Regents and Faculty

OF

PHYSIC,

OF THE

UNIVERSITY OF MARYLAND,

FOR THE DEGREE OF

DOCTOR OF MEDICINE,

By

William S. Tripley

Of

Maryland

Session of University of Maryland 1867-8

Sixteenth

To Doctor J. W. Herring

My learned preceptor and kind friend, I most respectfully dedicate this

"Thesis"

William, T. Shipley

January 1st 1863

Scarlatina or Scarlet Fever

This disease belongs to the exanthematous or Eruptive class of fevers, and has received its name from the color of the eruption. It is a disease remarkable for the great diversity which it presents, in different cases, as regards symptoms and fatality, being in its mildest form but a trivial affection, whereas in its severest form there is but few diseases more malignant. Most authors recognize three varieties of this disease, Viz Scarlatina Simplex Scarlatina Anginosa, and Scarlatina Maligna. Tho' widely different, as these varieties are, they are not distinct diseases, being essentially identical. A good division no doubt would be to divide it into mild and severe Scarlatina, and in describing the former to consider

incidently, whatever may belong to the latter, without treating of it seperately.

This disease presents no special Anatomical characters, exclusive of the eruption, and the affection of the throat, any other lesions found after death, are most probably due to concomitant affections or complications, though some researches would go to shew, the frequent occurence of a condition of the mucous membrane of the stomach and intestines analagous to that of the cutaneous surface, It will be well to notice first, the symptomatic events of the different stages, afterward the anomalies and complications liable to occur in either of the three stages, The stage of invasion is generally commenced with a chill, but this is not infrequently

wanting. Vomiting is also generally an early symtom, especially in children, attended in some cases, with diarrhœa. As a rule the febrile movement is greater in Scarlatina, than in any of the other eruptive pyrexiæ. There is not uncommonly redness of the fauces, more or less vivid, may generally be observed in this stage, generally with some sense of soreness, and pain in the act of swallowing. This condition of the throat with the efflorescence which appears in this situation prior to its appearance on the skin, the intensity of the febrile movement, great heat of skin, pain in the head and general prostration, may differ widely in different cases, not including cases of unusual severity.

The average duration of the first stage is

about twenty four hours; the eruption gen-
-erally making its appearance on the second
day; though it may appear a few hours after
the attack, or be delayed one, two or three
days, after the time it should appear.
The latter condition is generally due to some
complication. The second stage is known
as the Stage of eruption. It most usually
appears first on some part of the body or
limbs, before making its appearance on the
face and neck, but in a certain proportion
of cases it appears first on the latter situation.
Once in this uncertain development and
diffusion over the body, it differs from
the maculæ it closely resembles in Small Pox
and Measles. It rapidly diffuses itself
over the whole cutaneous surface, the

the degree of efflorescence may differ greatly in different cases.

The first appearance is in the form of minute dots or specks, these coalescing form irregular distributed patches, differing in size and shape, having serrated margins, exceptionally the eruption may present changes from distinct macules or spots throughout the entire disease. Where the skin is the most delicate, as in the inner surfaces of the arms and thighs, and flexures of joints, the redness is greatest and remains longest; the redness is vermillion or scarlet; generally not uniform, and on close inspection is seen to differ from erysipelatous redness, the patches being seen to be studded with

points, the latter may be distinguished by their extreme redness.

The redness in Scarlatina, disappears momentarily on pressure; and white lines are produced by drawing a hard pointed instrument over the reddened surface,

The surface is generally felt to be smooth, on passing the fingers over it, but in some cases there may be felt minute elevations or papules the papilla being abnormally developed as in the condition known as Goose-skin,

The integument is sometimes a little swollen this is quite evident on the face, and noticed by the patient when he rises his hands, more or less burning and pruritus usually accompanies the

eruption, About the third day from the time of its first appearance, the eruption attains its maximum in intensity and diffusion,

When the throat affection is unusually severe the cutaneous eruption is slight, the eruption then seems concentrated within the throat, In some cases the efflorescence on the skin disappears soon after its appearance and afterward returns, it fluctuates as regards vividness being strongly marked in febrile exacerbations and is also more vivid toward evening than in the morning, the throat is more or less affected in the vast majority of cases, but in some mild cases this may be wanting, where the throat is slightly affected, there is simple redness.

over the tonsils, posterior part of pharynx, and soft palate with little or no swelling, and is really only an efflorescence, in most cases however, there is swelling of the tonsils, together with a white or ash colored exudation, but differing from that usual characterizes diphtheritic inflamation, it adheres loosely, and cannot be detached in strips,

The exudation may assume a dark colored from matters emitted and from the effusion of blood, pain in deglutition and nasal voice, will be in proportion to the amount of the out affection,

The submaxillary and lymphatic glands at the angle of the jaw are frequently swollen and tender, a greater degree of the out affection than what has been described, except the

anomalous events of the disease, and
Characteristics, the variety known as Scarlatina
Anginosa
The tongue is usually coated early in the disease
frequently presenting numerous red points,
caused by the papillæ projecting through the
coating, another distinctive mark of this
disease is that during its progress, the coat-
exfoliates from the tongue, leaving the papillæ
clean and enlarged and presenting the appear-
-ance of a ripe Strawberry, this is a pathog-
-nomonic symptom, being peculiar to this
disease, it is often but not always present,
The febrile movement is not diminished,
but as a rule increased after the appear-
-ance of the eruption, the frequency of the pulse
and greatest heat of skin is now reached in

Scarlatina, than in any of the essential fevers, the pulse varies from 100 to 130 or 140, per minute, And in extremely severe cases, more especially in children may rise even higher, it is also often vibratory or thrilling, but always compressible these latter qualities going to show excited action, without augmented power of the heart; The skin is usually dry, and the heat intense, the thermometer in the axilla rising to 105° Fahr., or even higher, during the second stage, anorexia continues, perhaps vomiting, also in some cases, constipation, in others again, diarrhoea, thirst is usually urgent, delirium generally exists, save in mild cases, restlessness and insomnia are usually present, Albuminuria also occurs in a certain number of cases during the eruptive stage, slight

Albuminuria may be present here in Scarlatina as in various other affections, without denoting renal disease, but in this disease it often forms an important complication, the duration of the stage of eruption, in the majority of cases, is from four to six days, sometimes longer, often being prolonged to 8 or 10 days, until the declension of eruption, desquamation commences, which marks the beginning of the third stage, the degree and extent of desquamation, is proportionable to the intensity and diffusion of the efflorescence, which has existed during the second stage, and is only wanting in those cases in which the efflorescence fails to appear, The Cuticle exfoliates either in the form of minute branny scales, called furfuraceous desquamation, or in pieces of epidermis of

greater or less size, Occasionally the epidermis, of the hands and feet are detached entire, Several successive exfoliations may sometimes occur, in cases which pursue a favorable course, the febrile movement diminishes, with the commencement of exfoliation, and gradually ceases, with an improvement in the other symptoms, The decline of fever, is sometimes rapid, but in most cases gradual excessive pruritus frequently accompanies this stage.

Albuminuria, occurs more often during desquamation than during the stage of eruption, In this stage as in second the presence of Albumen in the urine, may or may not be indicative of serious renal trouble, The duration of this stage is indefinite, it may end in five or six days, in most cases it is

generally completed in from ten to twelve days, but in rare cases continues for more than two weeks, The foregoing sketch of the clinical history of Scarlet fever applies to cases which are either mild or not very severe, and in which the disease pursues its regular course, without anomalous events or complications, Certain cases however differ widely in many important relations, from what has been described, Extreme gravity of symptoms, mark some cases from the very outset, For instance the pulse becomes, very frequent, numbering 140. 150. 160 and more per minute, delirium, coma and convulsions may appear early, denoting great severity of the disease, the vital forces seem in fact to be overwhelmed, death taking place in two days, or even within a few hours from the attack, the truly malignant

cases, a fatal result may take place before the eruption appears, The gravity in these cases is not due to any complications, but to unusual intensity of the essential morbid conditions, which constitute the disease, Various symptoms are likewise liable to be developed at a later period such as acute delirium, typhomania, and subsultus tendinum, These are all characteristic of severe cases.

Convulsions, Coma, and delirium may be developed as effects of uræmia, Disease of the kidneys is an important complication in a number of cases, Albuminuria, occurs either during the stage of eruption or desquamation, in nearly a proportion of 1 to 2, It may last only for a few days, or continue during the whole of the disease, and even afterwards, This symptom

may not indicate any important affection of the
kidney, and on the other hand, some grave renal
trouble may exist without Albuminuria, the
sediment of the urine often contains, epithelial
or granular casts, without the coexistence of
Albuminuria, in such a large number of cases,
in view of the great danger of uraemia occurring,
the examination of the urine in reference to the
elimination of urea, is of more consequence than
with regard to Albumen and casts, the lessening
of urea, is to be inferred from a scanty secretion
and a low specific gravity or by analysis of a
quantity passed in a certain time, Clinical facts
appear to show that Gestation involves a special
tendency to renal disease, not only as a sequel, but
as a concomitant, It would seem rational
to suppose that the lining membrane of the

Secretory tubes of the kidneys, is affected, the same morbid condition, an analogous one in fact, to that affecting the mucous membrane of the pharynx, acting as a preventative to the proper excretion of urea, general dropsy sometimes appears during the progress of the disease, as well as after words. Symptoms pointing to uræmia, should direct attention to the urine as regards Albuminuria, Casts, and especially, to deficiency of urea, Uræmia may occur without any other renal complications in Scarlatina, hence the great importance of an examination in reference to the proper excretion of urea, The name Scarlatina Anginosa is applied because characterized by a great amount of throat affection, the tonsils are greatly swollen, there is also an abundant exudation, in some cases, so

much so in fact, that the phrynx presents the Characters of diphtheritic inflamation, Liquids taken into the mouth are returned through the nostrils, owing to the difficulty of deglutition, The inflammation may extend to the posterior and anterior naries, and acrid pus flows from the nose, causing excoriation of the face, In rare cases the inflammation extends to the larynx and bronchial tubes, the breath is generally very fetid, the eye may become involved leading to distruction of both eyes, The inflammation sometimes extends through the Eustachian tube into the external ear, producing permanent deafness, and even carries off the temporal bone followed by Meningitis and abcess of the brain, Suppuration of the glands of neck sometimes occur, constituting

what have been called Scarlatinous bubes, Gangrene and Ulceration, within the throat are rare events, all the local events belonging to this variety of Scarlet fever, may occur early in the disease or not until the stage of desquamation, The previous symptoms having denoted a mild attack, the eruption upon the cutaneous surface, in the so called cases of Scarlatina anginosa, may be slight or wanting.

Exclusive of Albuminuria, Uræmia or laryngitis, which are all liable to occur, the great severity of the throat affection may be sufficient to lead to a fatal result, Hemorrhage from various situations, Characterize certain cases, and these cases almost invariably prove fatal, Complications other than those which have been noticed and if rare occurrence, are

rheumatism, vaginitis, pleuritis, pericarditis and endocarditis. In irregular cases of Scarlatina the disease is generally, but not always severe, the only local manifestation, may be a slight soreness of the throat, with a cutaneous eruption. Cases of the throat affection, more or less severe, without any eruption on the skin, often occur during epidemics of Scarlatina. An attack of this kind, in some cases at least seems to render the patient, the girl, insusceptible to the disease. On the other hand some persons suffer from a throat affection, after exposure to the infectious miasm, that they may have had a regular attack of Scarlatina formerly. Another irregularity in mild cases, is the absence of any affection of the throat, the cutaneous eruption being more or less marked

In cases of this kind the disease may not be recognized or be confounded with roseola, Scarlatina latens has been applied to cases, where there has been an absence of eruption sore throat or febrile movement, and the only evidence of the existence of the disease is the occurence of Characteristic sequels, such as Albuminuria and anasarca, in persons who had been exposed to the Scarlatinous infection, without presenting any of the usual phenomena of Scarlatina, the local mani-festations of the disease in these cases, is supposed to be only in the Kidneys assuming that such cases occur, and that this explanation be true, it is more correct to say that the Scarlatinous infection may sometimes give rise to acute Albuminuria without causing

Scarlet fever.

Scarlatina has various sequels, and the most frequent one is that which has just been alluded to namely, Albuminuria with general dropsy, The time of its occurrence is from ten to twenty days after the date of desquamation, The symptoms are those of acute Albuminuria

Edema of the face and lower extremities, is first observed, and anasarca frequently follows, and if the latter be great effusion into the Serous cavities takes place,

Hydrothorax sometimes exists to such an extent as to endanger speedy suffocation, The urine is scanty, and often contains blood, Epithelial, Granular & Waxy Casts, are generally found in the sediment of the urine,

There is usually marked anæmia loss of appetite,
with great muscular debility,
Coma and convulsions, as well as Œdema of
the glottis are grave accidents incident to the
renal affection, though happily occur in
a small proportion of cases, and under judicious
management, this affection is rarely fatal,
Acute Albuminuria after Scarlet fever rarely
ends in chronic renal disease, it is well
to bear in mind that Coma & convulsions
may occur as sequels of Scarlatina, that
uræmia taking place without acute Albumi-
-inuria or dropsy Pleuritis pericarditis are
acute articular rheumatism are occasional
sequels, as well as concomitants of Scarlet
fever, Chorea is also to be noted
among the occasional sequels, Otitis is not,

uncommon, a purulent discharge from the ears occurs, in some cases leaving considerable deafness, If the inflammation affect not the tympanum, the deafness will be temporary, and under proper treatment, may generally be relieved, though apt to return from time to time, for a considerable period after recovery. The communicability of Scarlet fever seems to be established by the strongest proof and exclusive of inoculation, it is possible that its causation always involves infection, of those who are known to be brought into contact with cases of the disease, a much larger proportion contract it than those not exposed, many cases might be cited, affording strong proof of its contagiousness, by the importation of the disease into localities previously free of it,

The following example, as given by the late Dr. D. K. Palmer; a farmer living one & miles from Woodstock Vermont, on a by-road, which was not a thoroughfare, had but a single neighbour, he visited, with his family, some friends at a town, about twelve miles distant. Scarlatina existed in the family, with whom he visited. After his return home, all his children had, in succession, Scarlatina, the children of his only neighbour contracted it, six children of these two families died with it, the cases were under the care of a physician, living at Woodstock, distant some six or seven miles. Scarlatina did not previously exist in Woodstock. Shortly, two children in the physician's family were attacked and one died, the family in Woodstock was related to one of the families in which

the disease first appeared, and the husband and Wife watched one night with the Children of their relatives. Shortly afterwards the Children were attacked, Communication with the family, and the family of the physician was suspended throughout the Village, and the only additional person affected, was a boy, who was exposed by going to the physician's house during the time his Children were ill, Proof of this kind must be multiplied, finally, it appears to be certain that the disease has been communicated by Inoculating with the Serum contained in the vesicles which sometimes appear in connection with the Cutaneous efflorescence, That the infectious miasm may be carried in the Clothes of Physicians, nurses and others is regarded at the present time as unquestionable,

Facts show that the miasm adheres to material substances and preserves its morbific power for a long time, For instance persons have been attacked on returning to houses in which cases, had occurred, for weeks or months afterwards, and even when great efforts had been made to remove the miasm, The period of incubation, as a rule, is shorter in Scarlet fever than in the other eruptive fevers, It however varies, in different cases, In a case cited by Prof. Flint, the patient an Infant nineteen months old, was attacked twenty-four hours after the first symptoms of illness, In a young girl who assisted in taking care of the Infant, The later period rarely, if ever, exceeds six days, The disease occurs most frequently in the third and fourth

year of life, the liability is less after the fifth year, and is extremely rare after forty; Children under two years of age, and infants at the breast are not; as has been incorrectly stated, insusceptible to it, Cases have been reported in which the disease has been contracted in utero. Generally this disease is experienced but once by the same individual, but making all due allowance for cases in which roseola may have been confounded with Scarlatina, the exceptions to this general rule are not extremely rare, several authors speak of Cases, where it has occurred three times, in the same subject. It is stated that these secondary or tertiary attacks are never fatal. Diagnosis, in the quite early stages before the appearance

of the eruption, Scarlatina might readily be mistaken for any other febrile disease, but after this, the discrimination of the disease in the great majority of cases, is sufficiently easy, by attending to the following diagnostics points: the short duration of the stage of invasion, the intensity of the febrile movement, the appearance of the efflorescence in the throat prior to the cutaneous eruption, its appearance on the body and upper extremities often before or about the time it appears on the neck and face, its rapid extension, and scarlet color, also the irregular or serrated margins of patches of efflorescence: these together with the persistence or increase of febrile movement and exalted heat of body, after the appearance of efflorescence, may be

regarded as positive diagnostic features of Scarlet fever, as contrasted with Small pox and Measles. The difficulties in the way of diagnosis relate, in the first place, to those mild cases, with a slight eruption, & without any throat affection, in cases of this kind, there is a liability of confounding it with roseola. The diagnosis may also be difficult in cases in which the local manifestation is confined to the throat, the diagnosis in some of these cases must be, & remain at best, based on their occurrence during the prevalence of Scarlatina, in some cases of doubt or error, the sequels of Scarlatina, especially those pertaining to the Kidneys, serve to correct or establish the diagnosis Prof. Flint, says, a highly probable diag-

-nosis, before the efflorescence appears on the skin, may be based on a sudden attack of vomiting, with high febrile movement & redness of the fauces, in a subject between three and five years of age, especially during the prevalence of Scarlatina, Prognosis, There is no disease perhaps in which the result is more uncertain than this, seemingly mild cases, often assume a most malignant character and prove rapidly fatal, The prevailing type of the disease in some seasons, is mild and in other seasons severe, whether this variation be due to a difference in the virulence of the miasm, or to adjunctive influences, it is hard to say, aside from the intensity of the disease, the great danger depends upon complications liable

to occur in cases, which as regards the general symptoms seem to be mild: great frequency of the pulse, active delirium, and prostation, are symptoms denoting great danger to life, the mode of dying, in these cases, being by asthmia. In cases in which the throat affection is unusually severe the prognosis is generally unfavorable, a fatal result is always to be expected, if laryngitis ensue. Suppuration of the glands of the neck is also dangerous, an unfavorable prognosis is also to be given, in cases, in which gangrene of the throat occur the same may be said of Cases, Characterized by hemorrhage from Mucus membrane, Coma and Convulsions due to Uraimia, involve imminent danger, & these may be developed in cases

thought to be mild, how the great importance
of daily examinations of the urine, In cases
of Scarlatina, the presence of Albumen or
casts should excite apprehension, but the
great danger is the imperfect excretion of
urea, the patient is by no means safe after
the disappearance of Albumen from the urine,
if casts continue to be found in the sediment,
and if the quantity be small, and the specific
gravity low. Some authors, have reported
cases of Scarlet fever in which a fatal result
was due to the formation of a heart-clot
in the right Cardiac cavities, statistics
go to show that the disease is more fatal
in towns than in rural districts, and that
amongst the common exanthemata
it ranks second, in fatality it is

only exceeded by typhus and typhoid fever
Treatment; the mild variety of Scarlatina
does not call for active measures of treatment.
On the other hand, in certain cases of severe
Scarlatina the malignancy of the disease
often renders any treatment unavailing,
With respect to this as well as to the other
eruptive fevers, it is well to understand
that there is no known specific by means
of which it may be aborted or controlled:
but we are not to infer from this, that ju-
-dicious measures of treatment may not do
much toward affording relief and diminishing
the fatality from this disease, Tepid baths,
active purgatives, mercurialization, blis-
and emetics measures which have been
fore been employed in the treatment of

this disease, are now regarded as in general; opposed by sound reasoning and experience, these remedies are seldom if ever indicated, and if not indicated, must of necessity prove hurtful, the expectant plan of treatment is one most generally adopted, and followed at the present time, In the majority of mild cases hygienic treatment alone will suffice, in addition to free ventilation, cooling drinks and but light nourishment, the hygienic treatment should embrace measures entitled in an especial manner to maintain the functions of the skin, When we consider the fact, that renal disease, as a complication or sequel, is a source of danger even in the mildest cases, the great im-

-portance of attending to the functions of the skin, will be understood and appreciated,

For this purpose the tepid bath may be made use of once or twice daily, Or if this be not practicable repeated sponging of the body may be employed in its stead, there is good reason for believing, that there is less liability to renal disease, the more the functions of the skin are maintained by these measures. exposure to cold is to be avoided both during the progress of the disease, and in convalescence, but this should not lead to the error of cutting off free ventilation, Anodyne remedies may be indicated, when the bath, wet sheet, or sponging, have failed to relieve vigilance or restlessness, Constipation is best relieved by simple enemas; other symptoms may indicate

appropriate palliative remedies, that of
Potassa may be given, internally, and as a
gargle, in the affection of the throat, in
cases, the leading indication is derived
from the intensity of the febrile movement,
this latter condition is apt to cause, insomnia
and delirium, and in general is a good
criterion of the severity and danger of the
disease; To diminish the great heat of skin
and lessen the frequency of the heart's action
is an important object of treatment, and this
object seems best accomplished by the use
of water, the cold affusions employed
many years ago, by some celebrated practitioners,
with the most happy results, it is doubtless
the most efficient measure to be employed
for the relief of the active delirium

sometimes occurs in this disease, the apparent boldness of the practise renders it frequently objectionable, on the score of popular prejudice, Frequent sponging of the body doubtless secures, to a great extent, the same results,

The use of the wet sheet, is regarded by many as highly efficacious, In employing the wet sheet as a sedative and diaphoretic measure, the water should be about the temperature of 70° Fahr: The mode of employing, it is, first to strip the patient of all clothing, next envelope him in the sheet, and then closely cover with several blankets, Usually after remaining in this condition for about an hour, free perspiration commences, the sheet and blankets are now to be removed, the body wiped perfectly dry, and the patient placed

in a warm bed, Directly after this application, the frequency of the pulse is greatly lessened, the skin becomes comparatively cool, the patient seems tranquilized, and obtains refreshing sleep, this operation may be repeated once or twice daily, as there is no occasion for fears of repelling the eruption, Owing to its agreeable and pleasant effects, patients generally desire its repetition, the conditions under which it is always appropriate, are increased heat, with dryness of the skin, and great frequency of the pulse

In all malignant cases in which the vital powers are overwhelmed, and that involve a tendency to death by Asthenia, the Chief [illegible] must be on sustaining measures, Alcoholic stimulants, should be given in proportion, to the

amount of general prostration. The same striking benefits are often witnessed from the use of wine or spirits, in certain cases of Scarlatina, as of typhus or typhoid fever. Though the alone be true, Alcoholic stimulants are however, to be given with discrimination, and the Physician is to be guided in all cases, by watching carefully, their immediate apparent effects, precisely as in the other essential fevers, Cases of so called Scarlatina Anginosa, in addition to stimulation, call for some measures addressed to the throat, The Chlorate of potassa is now generally found to be a good remedy in these cases, from One to two drachms may be given daily, Watson recommends the Chlorine mixture, local application within the pharynx, ap-

deemed useful by many, if not most physicians. Of cauterizing applications, Prof. Plint prefers the hydrochloric acid, Alumen, Capsicum, Tannin and the borate of soda, applied in solution or in powder, have also been much used, Antiseptic applications, by gargling, or if the patient be too young, by means of a sponge, contribute at least to comfort. For this purpose a solution of Chlorinated Soda may be used, diluted with about eight parts of water. The patient may be allowed to take into the mouth small pieces of Ice, almost ad libitum. Dr Saml Jackson recommends a convenient plan for children, which consists in conveying pieces of Ice in a gauze bag which may be held in the mouth without any danger, compresses kept wet with cold water may be,

applied to the head and neck, In cases of much glandular swelling about the neck, Prof. Flint advises the free use of the tincture of Iodine, If supperative inflammation ensue, poultices or the water dressing should be used, the inhalation of the steam of hot water, is highly spoken of by Prof. W. S. Gardner, he states that in his practice this supersedes all other local applications, extreme pruritus of the skin is, in some cases, a source of much annoyance, preventing sleep and increasing the general disturbance. Greasing the surface of the body with bacon Rind was formerly much used in this Country, and found to answer quite well, Other applications, less disagreeable are equally efficacious, such as the glycerine and [illegible]

water ointment, or glycerine and Cologne-water, in the proportion of one part of the former to four parts of the latter, In cases in which convulsions occur and continue for any length of time, whether due to Uræmia or otherwise Prof. Flint, advises the inhalation of Chloroform, Trousseau extols compression of the Carotids, as highly effecacious in arresting convulsions in this disease, The other Uræmic phenomena beside convulsions, are cephalalgia disturbance, of vision, or Coma, and call for active measures of treatment, Saline purgatives or elaterium should be employed at once to eliminate urea, at the same time use should be made of the warm or hot air bath, or wet sheet, in order to produce full diaphoresis; Vomiting and purging in Scarlatina, should suggest

the inquiry whether they be not due to uraemia and if so, they are not to be arrested, Whenever the urine contains albumen or shows a deficiency in the amount of urea, measures should be taken, with a view of forestalling the effects of uraemia, Fomentations should be applied over the loins, the bowels kept loose, & diaphoresis induced by means of the warm bath or the wet sheet, When the measures of treatment, already noticed, fail to relieve restlessness and vigilance, Opiates are to be given, but always with the greatest caution, in young children or in cases threatened with uraemia,

With reference to the liability to heart-clot, Richardson advises the carbonate of ammonia given in small doses, frequently repeated, Some writers attribute to this remedy a

Special curative influence, in Scarlatina, It will be sufficient to remark here, that in the treatment of the sequels of Scarlatina, the same principles are essentially involved as, when these affections occur in other pathological connections. Otitis if neglected often leads to impairment of hearing, injections of tepid water daily, will usually effect a cure, but if the affection continues, after this application, mild astringent injections must be employée

Preventive Treatment, It is peculiarly important to guard children against Scarlet fever; from the fact, as the older they grow, the less liable they are to be attacked, they should therefore be kept as far separate as possible, from any source of Infection, for experience has proven

isolation, to be the best any only reliable prophylactic measure, Belladonna has been proposed as a prophylactic medicine, but the weight of testimony, would seem to decide against possession of any prophylactic virtues, Dr John Webster of London, strongly recommends, as a means, conjointly with isolation of preventing the spread of Scarlatina, the frequent sponging of the patient with warm vinegar, he believes, as the result of much observation, that with this precaution, the disease will very seldom be communicated